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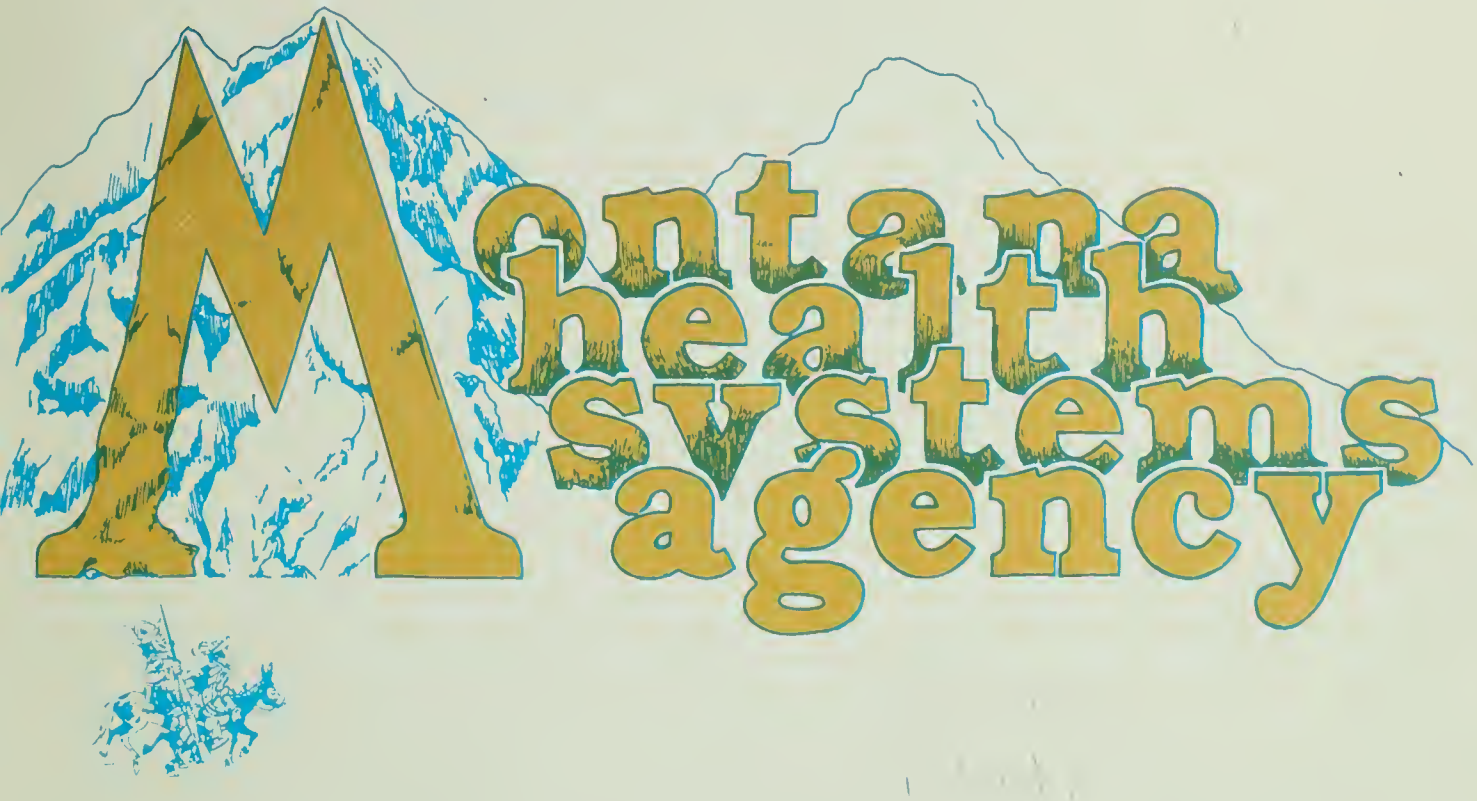

Health Systems Plan

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Dear Reader:

On behalf of the Governing Board of the Montana Health Systems Agency, I am pleased to provide this copy of the 1981 Montana Health Systems Plan. This third revision of the Plan was approved by the MHSA Governing Board on April 24, 1981.

Those who served on Subarea Advisory Councils, MHSA Committees and Task Forces contributed many hours toward the development of this Health Systems Plan. For their time, effort and expertise we are truly grateful!

The distribution of this document is to all who participated in its production and is available through the state library system. Other persons desiring a copy, please contact the Montana Health Systems Agency.

Sincerely,

Sharon Dieziger

Sharon Dieziger
Chairman of the Board

SD/sjp

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FOURTH ANNUAL HEALTH SYSTEMS PLAN

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EXECUTIVE SUMMARY

The 1981-1984 Montana Health Systems Plan (HSP) is presented through the efforts of volunteer health care professionals and lay public consumers to delineate and prescribe desired health care delivery patterns in Montana. The 1981-1984 HSP was developed in accordance with the mandates of Public Law 93-641, as amended by the Health Planning and Resource Development Amendments of 1979, Public Law 96-79. These mandates are pursued by Health Systems Agencies (HSA's), totalling over 200 nationally. In Montana, one Health Systems Agency is designated for this purpose.

As the third revision to the initial 1978 Health Systems Plan, health care services addressed have been expanded to include additional components in the primary, secondary, and preventive/risk reduction service categories. All plan components have been reassessed and updated through public review to best reflect current health care delivery status and future expectations of need. In so doing, the Montana Health Systems Agency (MHSA) developed guidelines, goal and objective statements, long range recommended actions, review critieria and MHSA policy statements for twenty health care services and three health status problems.

One intent of this document is to serve as a foundation for decision making in the area of health planning and health resource development. The MHSA's primary mechanism for encouraging the development of prescribed health care services in Montana is through its review and advisory recommendations or review and approval/disapproval authority. All health care institutions contemplating major capital expenditures, the development of new services or an alteration in the number of licensed beds must submit such projects to review by the MHSA and the State Department of Health and Environmental Sciences (DHES). In these reviews the MHSA recommends to DHES, which has final decision making authority. In reviews of selected health programs for the Proposed Use of Federal Funds (PUFF), the MHSA has approval/disapproval authority.

In addition to its review function, the 1981-1984 Health Systems Plan will this year lend itself to the development of Implementation Plan projects. In a departure from last year's HSP, long range recommended actions now supplement all plan components. It is the intent of the long range recommended actions to identify the health care resources necessary to accomplish the objectives, and ultimately the goal statements, for each health care service addressed. Through objective and goal achievements, a positive impact on the health care delivery system is possible.

The first health services discussed are tertiary services, encompassing the specialized, highly complex and expensive services characterized by relatively low levels of utilization, such as Radiation Therapy and End Stage Renal Disease. The MHSA supports the development of three regional tertiary centers in Montana — Billings, Great Falls and Missoula. Many of the services have already been established in these cities and are sufficient to meet the needs of Montanans through 1985. For most of these services, exceptions to the national guidelines are needed to insure reasonable accessibility for all Montanans.

Next, the Plan addresses nine secondary services such as general hospital inpatient care, alcohol and drug abuse services, mental health services, comprehensive rehabilitation services and long term care. The first two components of this section deal directly with hospital services and the issue of national guidelines for hospital resource standards and occupancy rates. Complementing the component on mental health services and the concept of deinstitutionalization, a new component was incorporated into this year's plan on Intermediate Care/Mental Retardation Facilities. Table 1 presents in summary form some selected tertiary and secondary health care services and their relationship to the national guidelines and suggested status in 1985.

In addressing primary health care services, two additional components were developed for inclusion in the 1981-1984 HSP, Federal Primary Care Programs and Hospice Care Programs. Both components complement the Primary Health Care Personnel and Long Term Care plan components respectively.

The 1981 Health Systems Plan also contains two additions to the chapter addressing preventive care and risk reduction services. Added to the Preventive Dentistry component are Immunization and Maternal and Child Health Services.

While the 1981 Health Systems Plan for Montana represents a departure from previous formats and emphasizes availability, accessibility and cost, the issue of prioritization of the individual plan components has not been accomplished. It is anticipated that the prioritization process, now that the HSP is complete with descriptions of services and recommended long range actions, will take place in the third and fourth quarters of 1982. The prioritization of the plan components will be added to this basic health systems plan as a supplemental document.

SERVICE	NATIONAL GUIDELINES	CURRENT STATUS 1979	SUGGESTED STATUS 1985
General Hospital Acute Inpatient Care Bed Supply	4.0 beds/1,000 population	4.3 beds/1,000 population	3.3 beds/1,000 population (If HSP was completely implemented) 3.9 beds/1,000 population (If no beds were added or taken out of service)
General Hospital Acute Inpatient Care Occupancy Rate	80 percent Average Annual Occupancy	53.6 percent	58.0 (low) 70.0 percent (high)
Obstetrical Services	Minimum of 1,500 births annually	Missoula Community: Births 1,427, %Occupancy 66.8 Kalispell Regional: 726, 48.8 Montana Deaconess: 1,193, 58.0 St. James Community: 510, 37.0 Bozeman Deaconess: 728, 39.8 St. Vincent: 2,242, 71.2	Bed allocation at discretion of facility administrator, per guidelines of general hospital acute inpatient care bed need projections
Neonatal Intensive Care Units	Total number of beds not to exceed 4/1,000 live births annually	Missoula Community: Beds Dedicated 10 Kalispell Regional: 3 Montana Deaconess: 10 St. James Community: 4 St. Vincent: 10 Holy Rosary: 2 (39 beds yield 6.1 beds/1,000 live births)	Health Systems Plan recommends 3.1 beds per 1,000 live births
Pediatric Inpatient Services	Minimum of 20 beds Minimum Average Annual Occupancy rate of 65 percent for units with 20-39 beds	Holy Rosary: Beds Dedicated 5, %Occupancy 47.7 Columbus: 21, 41.7 Montana Deaconess: 20, 37.8 Northern Montana: 12, 58.6 Billings Deaconess: 19, 61.7 St. Vincent: 28, 71.0 Bozeman Deaconess Shodair Children's: 20, 56.8 St. James Community: 11, 37.0 Silver Bow General: 10, 26.7 Kalispell Regional: 8, 19.9 Missoula Community: 10, 26.9 St. Patrick: 30, 23.4	Number of beds to be commensurate with historical patterns, occupancy rates for units with 20 or more beds to average 50 percent annually (minimum)
Open Heart Surgery	Minimum of 200 open heart procedures annually in each facility after 3 years of operation	Billings Deaconess: Open Heart Procedures 216 St. Patrick: 155 Montana Deaconess[1]: -	No additional open heart units initiated until existing units in service area achieve 350 open heart procedures annually in adult services

SERVICE	NATIONAL GUIDELINES	CURRENT STATUS 1979		SUGGESTED STATUS 1985
Cardiac Catheterization	Minimum of 300 cardiac catheterization procedures annually in each facility after 3 years of operation		Cardiac Catheterization Procedures	No additional adult cardiac catheterization units initiated until existing units in service area experience 500 studies annually No cardiac catheterization program initiated in absence of open heart surgery capability in any facility
		Billings Deaconess	364	
		St. Vincent	288	
		St. Patrick	522	
		Montana Deaconess	343	
Radiation Therapy	Each facility should serve a population of 150,000 persons Minimum of 300 new patients annually after 3 years of operation		Number of Radiation Therapy Procedures	Estimated 1985 populations for the *correlated* cancer management facilities are expected to range from a low of 183,809 (Great Falls) to a high of 280,834 (Billings). Estimated new cancer treatments are expected to range from 551 (Great Falls) to 843 (Billings). Missoula could realize an estimated 1985 population of 261,259 (service area) and expect 784 new cancer treatments. Butte, Helena, or Bozeman service areas could realize an expected 1985 population of 205,798 and expect 617 new cancer treatments.[3]
		St. Patrick	4,219	
		Columbus	8,255	
		St. James	1,779	
		Bozeman Deaconess	550	
		St. Peter's	588	
		Billings Deaconess	-[2]	
		Northern Rockies Regional Cancer Treatment center	7,436	
End Stage Renal Disease	Each facility should be consistent with DHHS regulations		Approved Stations	Estimate of Station Need
		Billings Deaconess	6[4]	6
		St. Peter's	3	3
		Columbus	7	5
		St. Patrick	2	7

1) Certificate of Need issued 1979.
2) Service discontinued May, 1978
3) It is assumed that if a Linear Accelerator were placed in one of these cities and the other two Radiation Therapy Units were phased out, the catchment are would be roughly the Southwestern Subarea. In this case, the potential catchment areas for Missoula, Billings and Great Falls would be reduced.
4) Excludes one home training station.

TABLE I

EXECUTIVE SUMMARY, SELECTED TERTIARY AND SECONDARY HEALTH CARE SERVICES IN MONTANA

I INTRODUCTION

CHAPTER 1
INTRODUCTION

1.0 Purpose and Use of the Health Systems Plan (HSP)

The purpose of this plan is to promote the development of the most effective supply, distribution and organization of health facilities and services within Montana. Specifically, it will be used:

(1) **To guide the Montana Health Systems Agency (HSA) in:**
- — Identifying high priority health care areas in need of special, in-depth studies
- — conducting project review activities for grant applications; capital expenditure proposals (Section 1122 of the Social Security Amendments); and local, state and federal plans or policies affecting the health care delivery system in Montana
- — formulating positions on health or health related issues of concern to the residents of Montana; and allocating Area Health Services Development Fund monies, should they become available.

(2) **To inform the appropriate health care providers** about the health care needs evident in Montana and priorities of the MHSA in order to:
- — enable health care providers to better make informed and rational decisions in allocating their resources; and
- — encourage the implementation of program development activities addressing identified problems.

(3) **To inform government officials** about the health care needs evident in Montana and the priorities of the MHSA in order to:
- — assist governmental entities in making informed and rational decisions in allocating health care resources in Montana.

(4) **To inform community residents** about the health care needs evident in Montana and the priorities of the MHSA in order to:
- — promote public involvement in health care planning; and
- — increase public awareness of the health care delivery system.

1.1 Scope and Limitations

Theoretically, the Montana Health Systems Plan should address all aspects of health and the health care delivery system in Montana. Unfortunately, because of staff and time constraints, this cannot be done. Therefore, this plan attempts to highlight the major concerns of Montanans and to suggest possible strategies which may relieve some of the more important problems.

In this year's revision of the Montana Health Systems Plan, guidelines for Hospice, Intermediate Care Facilities/Mental Retardation Facilities, Immunization and Maternal and Child Health Care Services have been added. At the same time, three services addressed in last year's plan were either deleted or combined with existing components. (CT Scanners, Emergency Medical Services, and Clinical Laboratories)

The primary purpose of the service components in this plan is to aid in the review of proposed new services and to serve as a starting point in conducting appropriateness reviews. Throughout these components, a concerted effort was made to strike a balance among costs, accessibility and availability. These components are oriented toward minimizing duplication and restricting excess capability of institutional services.

In some cases, data does not exist which would support further analyses. In other cases, staff and time limitations prevented going into further detail. Consequently, it is suggested that the components be used as general guidelines which are tempered by local needs and demands.

1.2 Methodology

This year, effort has been devoted to giving the public, interested providers and the Montana Health Systems Agency subarea councils an opportunity to reconsider the agency's policies toward the services addressed in the Plan. These policies are stated in each component's Goals, Objectives and Recommended Long Range Actions.

A series of public hearings were held in each of the subareas during the fall and winter. At each of these hearings, the Montana Health Systems Agency planning staff presented its suggested changes and then received comments, suggestions and criticisms from the public and the council. All comments were reviewed by the Montana Health Systems Agency Plan Development Committee. After those changes to be included were incorporated, the Plan Development Committee submitted the entire Plan to the Montana Health Systems Agency Governing Board for its adoption on April 24, 1981.

Schematic diagrams of the process used in the revision of the Plan components and in the development of the new components are presented in Appendix 6.

II OVERALL PRINCIPLES

CHAPTER 2
OVERALL PRINCIPLES

2.0 The Agency's Mission

A principle purpose of the Montana HSA is to engage in health planning consistent with the mandates of Public Law 93-641 and Public Law 96-79. As specified in the Agency's By-Laws, its mission is to:

1. Improve the health of the residents of the State of Montana,
2. Increase the accessibility, continuity and quality of health services of the state,
3. Restrain increases in the costs of providing health services, and
4. Prevent unnecessary duplication of health services, manpower, and facilities within the state.

2.1 General Principles

1. Health services should be cost effective.
2. Consumers must share the responsibility for their own health and the costs of health services.
3. Health education programs should be emphasized.
4. More emphasis should be given to the social components of health care, including, but not necessarily limited to, the special circumstances of the patient, his family, and the resources and the constraints of the community.
5. Health services should be coordinated at the local level to the maximum extent possible.
6. Primary care physicians should be recruited to shortage areas.
7. Alternatives to inpatient care should be encouraged.
8. Unnecessary duplication within the health field should be minimized.
9. The Plan should be developed with the intent of developing services for Montana where possible, practical and economically feasible.
10. The Plan should be developed so all providers are given reasonable and equitable compensation for the services they are expected to deliver.

III TERTIARY (REGIONAL) SERVICES

CHAPTER 3
TERTIARY (REGIONAL) SERVICES

Tertiary care services are those special services which, because of complexity, cost, and/or relatively low levels of utilization, are planned to be located within a large catchment area. For these reasons, tertiary care services are typically provided in large referral hospitals and planned on a regional basis. In this plan, four tertiary care services are addressed. They are:

— Clinical Cardiovascular Laboratories and Cardiac Surgery Facilities
— Radiation Therapy and Other Oncology Services
— End Stage Renal Disease (ESRD)
— Neonatal Intensive Care Units

Table 1 shows the general categories in which these services can be classified, the settings in which they are typically found and whether or not they are addressed in the National Guidelines.

Most of the services addressed in this chapter can be classified as diagnostic and treatment services. In some components, prevention and detection strategies are discussed. Although there are prevention and detection aspects in almost all of these components, they are particularly important in delivering neonatal care.

The most common setting in which tertiary care services are found in Montana is in the large community (short-stay) hospital. Radiation therapy is also found in ambulatory settings (physicians' offices). The End Stage Renal Disease component emphasizes the potential of home health care, especially in a rural state such as Montana, but at the same time acknowledges the need for hospital-based dialysis units.

The current national guidelines address all four of the services addressed in this chapter. The MHSA has considered these guidelines and found it necessary in many cases to justify exceptions to them. In weighing and trying to balance cost, accessibility, quality and other characteristics, the MHSA has found, in many cases, accessibility to be extremely important. For example, if the guidelines for Radiation Therapy Units were to be literally followed, over 70 percent of the cancer patients would have to travel more than 50 miles for cancer treatment.

The primary theme running through all of these components is the concept of developing three strong tertiary care centers in Montana. These are Billings, Missoula, and Great Falls. Secondarily, if the local situation warrants, certain services should be developed in Kalispell, Bozeman, Butte, Helena and Miles City.

	Clinical Cardiovascular Laboratories & Cardiac Surgery Facilities	Radiation Therapy	End Stage Renal Disease	Neonatal Intensive Care Units
CATEGORIES OF SERVICE				
Community Health Promotion				
Prevention & Detection				X
Diagnosis & Treatment	X	X	X	X
Habilitation & Rehabilitation				
Maintenance Services				
Support Services				
Enabling Services				
SETTINGS				
Community				
Home			X	
Mobile				
Ambulatory		X		
Short-Stay	X	X	X	X
Long-Stay				
Free Standing Support				
Addressed by the National Guidelines	X	X	X	X

TABLE 1

Subjects, Categories of Service and Settings Addressed in the Tertiary Care Components

3.1

CLINICAL CARDIOVASCULAR LABORATORIES AND CARDIAC SURGERY FACILITIES

GOAL:

Cardiac Angiographic procedures and cardiac surgery services should be available to the populace of Montana. These services should be maintained to provide the most efficient, cost effective diagnosis and treatment of the highest quality.

OBJECTIVES:

1. Facilities offering cardiac diagnostic and surgical services should achieve and maintain a high level of expertise. In concert with this view, the following number of procedures should be performed annually by facilities providing these services:
   — Cardiac Catheterizations — 300 caths/lab (Range — 100 to 500 caths)
   — Open Heart Surgeries — 200 surgeries by each two (2) physician team at the end of three (3) years of operation (Range — 100 to 350)
   The number at the low end of the range provides a guideline for individual providers to perform and maintain proficiency. Operating below these levels for an extended period of time may result in decreased efficiency and lowered quality of service provided. The high number in the range is intended to represent average saturation levels for an individual laboratory or medical team.
2. All hospitals providing Cardiac Angiographic services should regularly evaluate quality of care in that service through PSRO, JCAH, and practicing cardiologists with reference to nationally established criteria.
3. All hospitals providing Cardiac Angiographic services should relate to the actual cost of providing the services.
4. Open Heart facilities in Montana should operate at peak efficiency and until 1985, existing facilities should be maintained while a cost-effective volume level is determined.
5. By 1985, hospital departments serving open heart surgery patients will have developed quality assurance programs.
6. Total charges for open heart surgery should relate to the actual cost of providing total services for surgery and inpatient post operative treatment.
7. By 1985, each cardiac surgery program in Montana should have designed and be prepared to encourage, through active support, patient self-help groups to provide for more comprehensive rehabilitation of open heart surgery patients.

LONG RANGE ACTIONS:

1. Facilities providing Cardiac Angiography should use standardized definitions and data to be monitored on a regular basis by a peer review system.
2. By 1983, Montana hospitals will keep separate cost-accounting for their Cardiac Angiographic laboratories.
3. The Montana Health Systems Agency should not endorse any Certificate of Need application for a new cardiac angiographic facility until existing facilities have exceeded the maximum of 500 procedures per laboratory in accordance with National Guidelines.
4. The Montana Health Systems Agency should not endorse any Certificate of Need application for open heart surgery facilities until the existing facilities offering open heart surgery exceed the National Guideline of 350 procedures annually per facility.
5. Based on ICU/CCU section analysis, consideration should be given to the relationship of post operative facilities to the capability of more fully utilizing existing surgical facilities (i.e. 350 surgeries/year).
6. Current utilization and projected trends should be re-evaluated in 1983 with an eye to efficient utilization of existing facilities.

1.0 BACKGROUND

1.1 SERVICE DEFINITION

Angiography is a broad term referring to a number of specialized diagnostic procedures. There are four major subsets in angiography: Cardiac, Cerebrovascular, Visceral and Peripheral. Cardiac angiography involves two categories of procedures, a) Coronary arteriography, in which a tube is inserted into the coronary arteries followed by injection of an X-ray opaque fluid which enables a specialized x-ray to identify obstructions in the artery, and b) Right and left heart catheterization: in which a tube is passed into either the right or left heart chambers to measure how well the heart is pumping.

Because the National Guidelines set standards regarding the volume of cardiac angiographic procedures, it is also important to define the laboratory facilities within which these procedures are performed. A dedicated lab is one in which all space, equipment and personnel are used for cardiac angiography only. An angiographic lab, or combined lab, is one in which both cardiac and non-cardiac angiographies are performed and in which personnel may be assigned to general radiographic duties when not engaged in angiographic procedures.

Cardiac angiography is an important diagnostic tool in determining the nature and extent of heart damage. It is used primarily for the evaluation of potential open heart surgery candidates. Based on the information produced by such procedures, a cardiologist determines whether medical or surgical treatment is most appropriate for a patient. Approximately one out of every three individuals undergoing cardiac angiographic diagnosis have heart surgery. The use of angiography has increased considerably because of recent developments in coronary artery bypass (CAB) surgery. However, the introduction of radionuclide cardiac imaging will likely contribute to a future decrease in the use of catheterization for the diagnosis of heart disease.

Open heart surgery can be simply defined as surgery requiring use of a heart-lung bypass machine to perform the functions of circulation during surgery. (Note: The heart-lung bypass machine is sometimes used for procedures other than open heart surgery). Such surgery is but one form of treatment for specific symptoms associated with some forms of heart disease.

Surgical techniques have been developed during the past

decades to deal with selected heart conditions—primarily 1) congenital heart abnormalities, 2) acquired valvular disease or aneurysm, 3) disabling angina pectoris which is unresponsive to other medical treatment and 4) major narrowing in proximal segments of major branches of coronary arteries. More recently, surgery has been employed to treat preinfarction angina and uncontrollable venticular arrhythmia—or, in laymens language, to circumvent tissue damage by performing surgery during the early stages of a heart attack.

Until the early 1970's, the results of coronary artery bypass surgery were controversial; national follow-up results indicated a number of post-operative complications. By the mid 1970's, there was consistent evidence of low operative mortality for appropriately selected patients, satisfactory vein graft patency, and good symptomatic relief of pain one year after surgery. Conclusions on the long-term benefits of such surgery in terms of its capability of preventing infarction or increasing longevity await further research.

1.2 SERVICES AND SETTINGS

Cardiac angiographic services are offered by four facilities in Montana. Cardiac surgery services are offered by three facilities in Montana. These facilities serve as regional centers and are located in Billings, Great Falls and Missoula. These centers receive referrals from the entire state and the Billings Deaconess also receives referrals from northern Wyoming. There are no facilities equipped and staffed for pediatric cardiac services.

1.3 TRENDS

Figure 1 illustrates the trends for all heart diseases and ischemic heart disease in Montana over the past decade. While a gradual decline can be observed from 1973 to 1978, recent data for 1979 indicates an increase in the death rate for all heart disease and for ischemic heart disease.

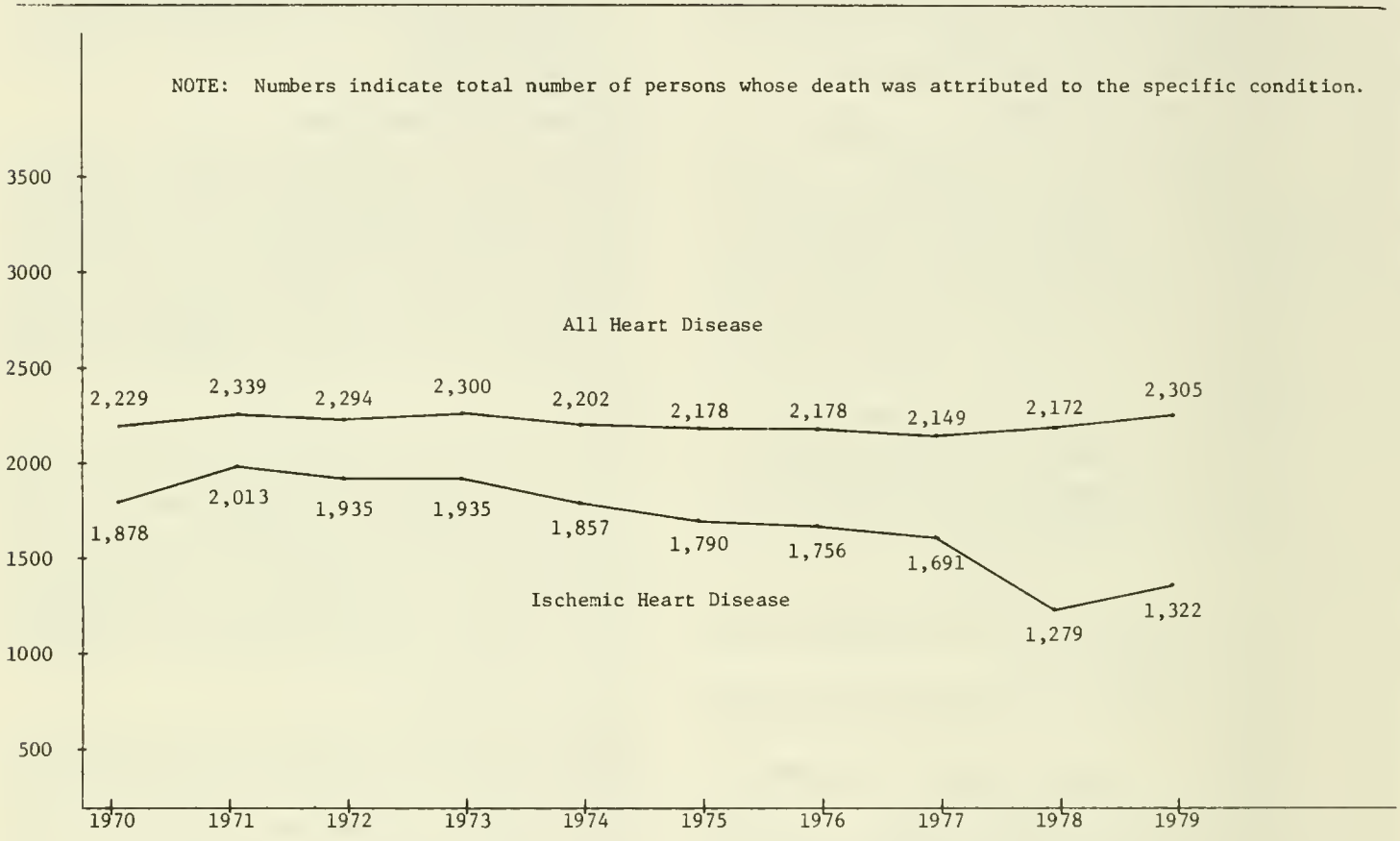

FIGURE 1 — Crude Annual Death Rates in Montana due to Heart Disease and Heart Attack (1970-1979)

With the approval of a Certificate of Need in late 1979 for Montana Deaconess in Great Falls, a fifth pump team will be realized in Montana (expected to be operational mid-October 1980). This additional facility for open heart surgery should reduce the number of patients from the Great Falls area currently seeking the service in Spokane.

Through 1978 a trend toward stabilization of the percentage of patients identified from cardiac angiography as having cardiac surgery was 33 percent. In 1979 this percentage dropped to 24.5 percent. Additionally there was a dramatic increase in the number of angiographic procedures performed by St. Patrick Hospital in Missoula (e.g. 360 in 1978 and 522 in 1979: see Table 1). Table 1 depicts the number of cardiac angiographic procedures and open heart procedures in Montana facilities 1972 through 1979.

Type of Procedure	Billings Deaconess (Billings)	St. Vincent (Billings)	St. Patrick (Missoula)	Montana Deaconess (Great Falls)
Cardiac Catheterizations				
1972	15	--	--	--
1973	54	--	--	--
1974	69	--	87[1]	--
1975	240	--	257	104[2]
1976	434	--	382	105[2]
1977	505	--	451	204[2]
1978	486	111[3]	360	343[2]
1979	364	288	522	343
Open Heart Procedures				
1972	18	--	--	--
1973	53[4]	--	--	--
1974	68	--	--	--
1975	95	--	--	--
1976	174	--	94	--
1977	178	--	134	--
1978	166	--	112	--
1979	216	--	155	--

1) Started September 3, 1974.
2) Fiscal year data - July to June.
3) St. Vincent Hospital (Billings) has been doing cardiac catheterizations since July 9, 1978.
4) Operating room closed for renovation for two months in 1973.

TABLE 1 — Number of Cardiac Angiographic and Open Heart Procedures, By Facility, 1972-1979

2.0 CURRENT SITUATION

2.1 AVAILABILITY

Figure 2 indicates the location of cardiac angiographic and open heart surgery centers in Montana. These locations coincide with all other regional referral tertiary service centers within the state. With the advent of new open heart surgery services in Great Falls, Montana has five pump teams, one in Great Falls and two teams each in Missoula and Billings.

These centers have available all support services required and maintain appropriate support medical specialists to assure comprehensive patient treatment.

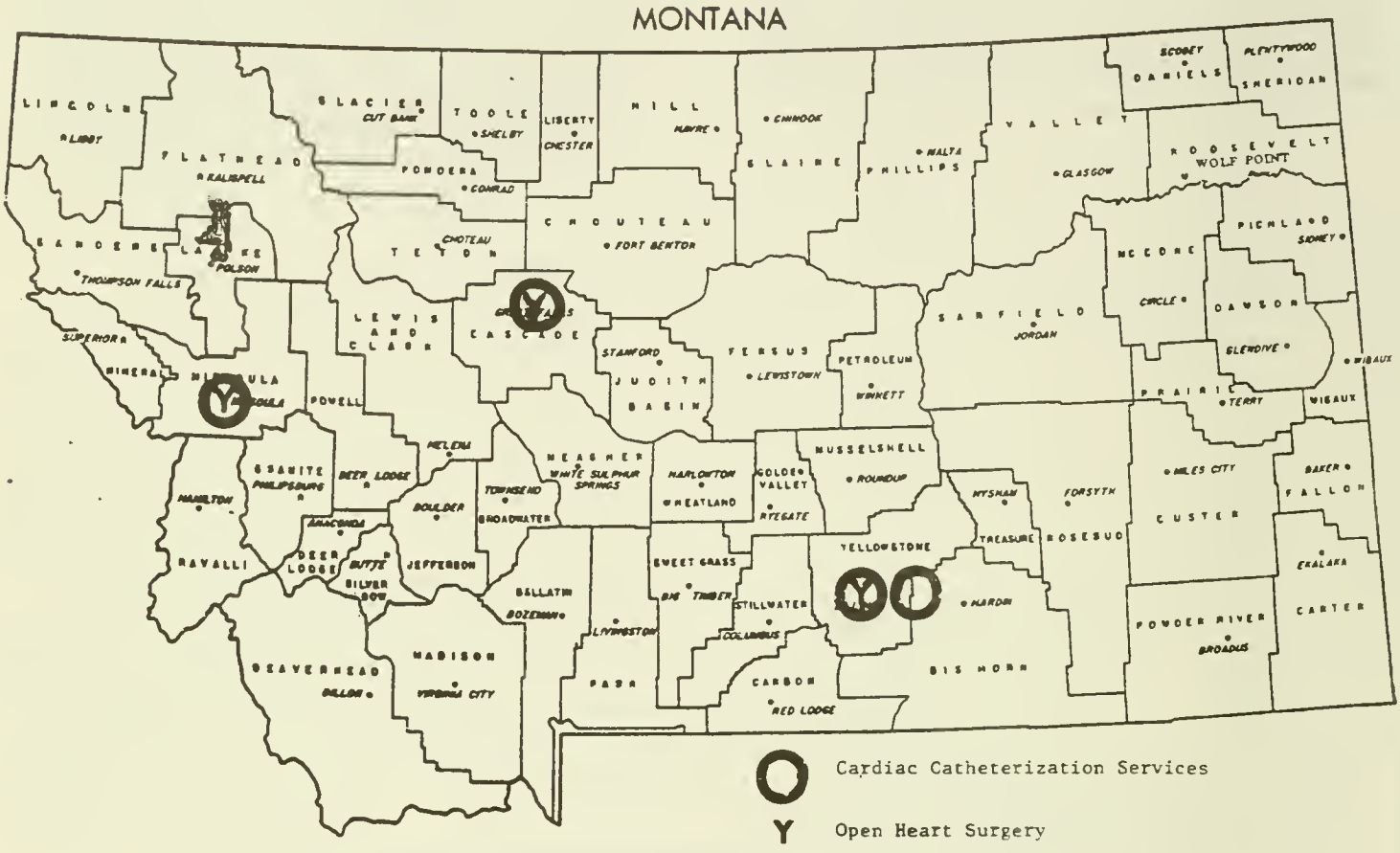

FIGURE 2 - Locations of Cardiac Angiography and Open Heart Surgery Capabilities in Montana (1979)

2.2 ACCESSIBILITY

Specialized cardiac services are accessible to 75 percent of all Montanans within 200 miles. Much like all other tertiary care services, the residents of Northeastern Montana, a predominately rural area, have the greatest distance to travel for the services. This is considered adequate in that cardiac angiographic services are a diagnostic tool rather than an emergency treatment procedure and there is no need in terms of patient safety to have immediate access to diagnostic or treatment facilities.

Judging by the number of procedures in 1979, it would appear that Montanans are experiencing adequate access to these services in that referrals from other institutions and the private sector are accounting for approximately 90 percent of procedures for open heart surgery and angiography.

2.3 COST

The Department of Health and Environmental Sciences does not collect specific cost data for angiography or open heart surgery. This is one of the long-range actions previously stated. The only cost data available is based on the projection of net revenues realized as projected by Montana Deaconess Hospital, Great Falls, as reflected in its Certificate of Need application in late 1979. Projections based on 100 open heart procedures during the first full year of operation would be $9,840.00 per patient, and $9,012.00 per patient beginning in the second full year of operation. There were no accurate average cost figures available for cardiac angiography per patient.

3.0 FUTURE RESOURCE REQUIREMENTS

3.1 AVAILABILITY

The future resource requirements for cardiac angiography and open heart surgery should be based on optimizing existing facility utilization in terms of maintenance of high quality and to reflect a cost effective and efficient use of resources.

In deference to more traditional approaches, the development of future resources in the existing three regional referral centers (Billings, Missoula, Great Falls) or for any other referral centers which may develop in Montana, two standards are established to project additional services.

Cardiac Angiography

(a) Standard

(1) There should be a minimum of 300 cardiac catheterizations, of which at least 200 should be intracardiac or coronary artery catheterization performed annually in any adult cardiac catheterization unit within three years after initiation.

(2) There should be no new cardiac catheterization unit opened in any facility not performing open heart surgery.

(3) There should be no additional adult cardiac catheterization unit opened unless the number of studies per year in each existing unit in the health service area(s) is greater than 500.

(b) Discussion

The modern cardiac catheterization unit requires a highly skilled staff and expensive equipment. Safety and efficacy of laboratory performance requires a case load of adequate size to maintain the skill and efficiency of the staff. In addition, the underutilized unit represents a less efficient use of an expensive resource and frequently reflects unnecessary duplication.

Based on recommendations from the Inter-Society Commission on Heart Disease Resources, the HSA believes that a minimum level of 300 catheterizations per year is indicated to achieve economic use of resources. Several State health planning agencies, such as New Jersey, suggested a higher minimum level and that Department will be considering whether a higher level should be established in the future.

The New Jersey Department has also determined that existing units should be performing more than 500 cardiac catheterizations before a new unit is opened within 200 miles of an existing facility.

Open Heart Surgery

(a) Standard

(1) There should be a minimum of 200 open heart procedures performed annually, within three years after initiation, in any institution in which open heart surgery is performed for adults.

(2) There should be no additional open heart units initiated unless each existing unit in the health service area(s) is operating and is expected to continue to operate at a minimum of 350 open heart surgery cases per year in adult services.

(b) Discussion

Open heart surgery for congenital and acquired heart and coronary artery disease represents a marked advance in patient care. Highly specialized open heart procedures require very costly, highly specialized manpower and facility resources. Thus, every effort should be made to limit duplication and unnecessary resources related to the performance of open heart procedures, while maintaining high quality care. Minimum case loads are essential to maintain and strengthen skills. (Open heart surgery procedures are defined as procedures which use a heart-lung bypass machine to perform the functions of circulation during surgery.)

A minimum of 200 adult open heart surgery procedures should be performed annually within an institution to maintain quality of patient care and make most efficient use of resources. This standard is based on recommendations of the Inter-Society Commission on Heart Disease Resources. In order to prevent duplication of costly resources which are not fully utilized, the opening of new units should be contingent upon existing units operating, and continuing to operate, at a level of at least 350 procedures per year. The 350 level assumes an average of seven operations a week, a schedule that in the HSA's judgment is feasible in most institutions providing these services.

3.2 ACCESSIBILITY

These specialized services should be accessible to 75 percent of all Montanans within a travel distance of 200 miles. Access to these services should be on a 40 hour week, 52 weeks per year basis.

Services should be planned considering regional estimates of demand, recognizing that patients may travel to services without significant added risks to health.

3.3 COST

Existing cardiac angiography and surgery facilities and future planning for additional facilities should strive to obtain operational levels above the minimum volume in order to maximize cost effective use of resources.

There is some evidence of a positive relationship between facility volumes and cost but no precise definition exists of what volume level is most cost effective while still being consistent with quality of care. It is assumed that expensive special procedure facilities operating at low capacity cannot be justified in a time of escalating health care costs.

The National Guidelines propose a minimum of 300 adult cardiac catheterizations, of which at least 200 should be intracardiac procedures. Research indicates that there is no medical distinction between intracardiac catheterization and other cardiac catheterizations, limiting the usefulness of the proposed National Guideline.

The National Guideline also does not distinguish between dedicated cardiac labs and those labs in which cardiac procedures are but one of several types of procedures being conducted; the cost justification for such guidelines is based on total number of procedures rather than on the types of procedures. The quality justification for such guidelines is a matter of controversy as insufficient research has been conducted to substantiate the proposed figures.

Again, with lack of hard data for Montana, the National Guideline for open heart surgery should be adequate regarding cost until such time as a cost effective operational analysis can be performed.

4.0 GENERAL ANALYSIS

4.1 ALTERNATIVES AND ISSUES

The principle issue evolves around inadequate cost reporting in order that an effective analysis of operation can be determined. Since cost effectiveness and maintenance of high quality continues to be the essential issues in order to review existing services and plan for additional services based on established National Guidelines, Montana should develop a system for realistic and accurate cost reporting and through the direction of PSRO develop standards for assessing quality of care.

5.0 EXCEPTIONS TO NATIONAL GUIDELINES

The number of cardiac angiographic and cardiac surgery procedures reported in Montana for 1979 either meets or exceeds the recommended minimal annual procedures with the exception of open heart surgery at St. Patrick Hospital in Missoula, which indicated a 45 percent increase in procedures at the end of the third full year of operation. Based on current projections of the next planning cycle, it is anticipated that St. Patrick will achieve 200 open heart procedures during 1980.

Additionally, the new facility at Montana Deaconess, Great Falls, has projected that they will conform to National Guidelines during the first three years of operation, commencing in October of 1980.

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APPENDIX I

RECOMMENDED REVIEW CRITERIA: CLINICAL CARDIOVASCULAR LABORATORIES AND CARDIAC SURGERY FACILITIES

1) All Facilities proposing to deliver cardiac angiographic procedures and/or cardiac surgery services must show it is economically feasible.
2) Institutions involved in cardiovascular surgery should have readily available a clinical cardiovascular laboratory. Clinical cardiovascular laboratories independent of an institution involved in cardiovascular surgery should be discouraged.
3) The following services should be available on a 24-hour emergency basis to the surgical team: radiological services, standard laboratory facilities, full blood bank, bacteriological laboratory, autopsy, intensive care and dialysis.
4) Cardiac care of high quality should be provided as close to the patient's home as feasible, without compromising his opportunity for recovery. On the other hand, competing low volume programs in close geographic proximity are to be discouraged.
5) An adequate follow-up system established by the surgical team is necessary so patients are seen as often as required in the immediate post-discharge period and subsequently followed at appropriate intervals.
6) In order to provide quality nursing care for open heart surgery patients in the Intensive Care Unit, there should be no less than one (1) registered nurse for every open heart patient during the first 24 hours. In addition, optimal staffing requires adequate backup support from other registered nurses assigned to the ICU.
7) The Montana Health Systems Agency should not endorse any Certificate of Need application for a new cardiac angiographic facility until existing facilities have exceeded the maximum of 500 procedures per laboratory in accordance with National Guidelines.
8) The Montana Health Systems Agency should not endorse any Certificate of Need application for open heart surgery facilities until the existing facilities offering open heart surgery exceed the National Guidelines of 350 procedures annually per facility.

3.2
END STAGE RENAL DISEASE

GOALS:

1. The residents of Montana should have available an End Stage Renal Disease delivery system sufficient to meet the probable demand for service based on an incidence rate of sixty new ESRD patients per one million residents.
2. ESRD treatment should be accessible to all who need it.
3. Patient data and Medicare reimbursement data on Montana services by mode of treatment should be clarified.

OBJECTIVES:

1. The residents of Montana should have sufficient ESRD resources to meet the probable demand of 142 ESRD patients by December, 1981 and 187 ESRD patients by December, 1985. Three additional stations are indicated for December, 1982 and eight more may be needed by December, 1985.
2. Home dialysis programs should be promoted in Montana.
3. A statewide program dealing with the prevention of End Stage Renal Disease should be developed in Montana by 1985.
4. Montana SHPDA, Montana HSA and NCC#2 will work to develop a mutually satisfactory Certificate of Need application form and review criteria to be used by all three agencies.
5. Montana SHPDA and Montana HSA and NCC#2 should continue their written agreement on their relationship and responsibilities regarding the collection and exchange of data and the review of ESRD proposals.

LONG RANGE ACTIONS:

1. Since travel creates a major barrier to accessibility of facility-based treatment, development of ESRD treatment centers should facilitate maximum accessibility. By 1982, Montana SHPDA and Montana HSA should assist facilities in identifying specific transportation problems currently existing, in developing solutions to those problems and in working with the Department of Social and Rehabilitative Services to develop funding mechanisms for transportation to treatment centers.
2. Home dialysis should be available for all suitable candidates in Montana and any disincentives for home dialysis existing currently should be minimized. By 1981, Montana SHPDA, Montana HSA and NCC#2will investigate sources of funding for home helpers where this exists in other states and recommend a plan of action for Montana. By 1981, the same agencies will encourage the Department of Social and Rehabilitative Services to develop financial criteria for meeting the needs of kidney patients on home dialysis.
3. By 1982, Montana SHPDA, Montana HSA and NCC#2 and other interested parties should initiate and support educational efforts toward the public and medical community with regard to home dialysis, including an evaluation of home dialysis in terms of the potential cost savings and the benefits to and/or problems for the patient utilizing home dialysis.
4. By 1982, the four existing ESRD service units should be encouraged to develop or expand their own home dialysis training programs.
5. To encourage prevention of End Stage Renal Disease, Montana SHPDA will coordinate planning efforts among state agencies, patients, special interest and provider groups involved in heart, stroke and renal disease. By 1982 hypertension screening programs with methods of referral and follow-up will be developed in Montana and results will be quantified and reported to appropriate agencies.
6. By 1982 and in subsequent years, the incidence and mortality rate among ESRD patients in Montana will be verified.
7. By 1982 Medicare reimbursement data by mode of treatment will be available.

1.0 BACKGROUND

1.1 SERVICE DEFINITION

Among the principal functions of the kidneys are filtration of waste products and excess fluid from blood in the form of urine, regulation of the concentration of hydrogen, sodium, potassium, phosphate, and other ions in the body fluids, and production of hormones affecting calcium balance, red blood cell production, and other bodily functions.

End stage renal disease occurs when the kidneys suffer permanent loss of function and requires either a kidney transplant or dialysis (artificial kidney treatment) in order to maintain life. Loss of kidney function may result from a number of causes, including chronic glomerulonephritis, ploycystic kidney disease, diabetes mellitus, hypertension, infection, congenital and genetic disorders, and trauma. ESRD affects persons of all ages, although almost 50 percent of patients are over the age of fifty. Males and females are affected almost equally, but there is a significantly higher incidence among Blacks.

1.2 SERVICES AND SETTINGS

There are four principal services which must be available for the treatment of end stage renal disease:

1. kidney transplantation,
2. histocompatibility testing,
3. organ procurement,
4. kidney dialysis.

Kidney transplantation involves the surgical grafting of a new kidney into the patient. The grafted kidney may be obtained from a relative (related donor transplantation), in which case the operation is an elective procedure without the patient necessarily requiring a long period of dialysis beforehand. More often, a kidney must be obtained from a recently deceased donor (cadaveric transplantation) and, because of a continuing shortage of donor kidneys, a patient may have to wait on dialysis for months or years before a compatible cadaveric transplant becomes available.

Histocompatibility testing or tissue typing involves complex typing of cells from both potentia' donor and recipient in order to determine compatibility for successful transplantation.

Organ procurement is the process of acquiring donor kidneys and includes locating, harvesting, preserving and transporting donated kidneys to a transplant center.

Kidney dialysis is a process by which dissolved toxic impurities are removed from a patient's body by diffusion from the blood across a semipermeable membrane into a dialyzing fluid — the dialysate. There are two commonly-used forms of dialysis: hemodialysis and peritoneal dialysis. Both generally require use of a machine, a chemical solution (dialysate), and a membrane through which toxins diffuse from blood to dialysate. Both forms of treatment can be carried out either in a facility or at home.

Hemodialysis requires connection of the patient to an artificial kidney machine for 3 to 6 hours,[1] usually three times weekly. Blood is circulated through an artificial kidney, and accumulated toxic products and excess fluid are removed from the blood before its return to the body. Using an artificial kidney to replace kidney function, some patients have been maintained alive as productive members of society for more than eighteen years.

Peritoneal dialysis is a slower dialysis process, using the peritoneal membrane lining the abdominal cavity as a semipermeable membrane, with toxins diffusing from capillaries lining this membrane into dialysate introduced into the peritoneal cavity through a permanently implanted abdominal catheter. Treatment usually is three times weekly, overnight for ten to fourteen hours, using special equipment.[2] Pertioneal dialysis is well tolerated by many patients, and is particularly useful in the elderly and patients with cardiac disease, and also is particularly useful for home dialysis.

Continuous Ambulatory Peritoneal Dialysis (CAPD) also utilizes a plastic catheter implanted into the abdominal cavity. The patient performs three to five exchanges a day, seven days a week. Fluid is run into the patient's abdomen from a 5-liter plastic bag of the dialysate. The plastic bag is then rolled up and worn by the patient for four to six hours. After this time interval, the fluid, which now contains the toxic wastes and excess water, is drained from the abdominal cavity into the same plastic bag. The plastic bag is then discarded and replaced with a new bag of dialysate. Thus, dialysis is performed continuously at home by the patient during normal daily activities.

CAPD may provide a less costly alternative to in-center and home dialysis but it is a relatively new described technique.

Chronic ambulatory peritoneal dialysis and another recent dialysis service, in-center self-dialysis, have been advocated by some physicians and DHHS personnel. Because of legal problems and lack of clear definition with the latter and because of the greater risk of infection with the former, these treatment modes are still under study and have not been widely adopted in the State of Montana as yet.

Dialysis, which for the treatment of ESRD is known as chronic or maintenance dialysis, may be performed, according to Federal Regulations, in any of three settings: at a Renal Dialysis Center, a hospital-based unit approved to furnish the full spectrum (except renal transplantation) of diagnostic, therapeutic, and rehabilitative services required by ESRD patients; at a Renal Dialysis Facility which need not offer inpatient dialysis, and may not normally provide the full spectrum of care for other diseases from which an ESRD patient may suffer; or at home, where a family member or a paid helper assists the ESRD patient with maintenance dialysis. Any other needed services are provided in the facility or a hospital.

For many stable ESRD patients, home dialysis appears to be the preferred method of treatment. Home dialysis, in maintaining the patient within his normal social environment and in promoting his independence from illness-oriented hospital care, offers the patient the best treatment modality for a productive and meaningful life.

In addition, home dialysis is less expensive. A recent study indicates the patient cost for facility dialysis is $24,500 per patient per year. For home dialysis, the first year's cost is $17,000 and $15,400 for each subsequent year.[3] According to a Government Accounting Office report, the cost per patient per year on home dialysis ranges from $8,000 to $12,000 compared to a yearly per patient cost of $15,000 to $30,000 for institutionally-based dialysis.[4] Cost information supplied by the Montana State Kidney Patient Association indicates the cost of home dialysis ranges from approximately $6,013 to $12,664 depending on machine rental costs and dialyzer reuse.[5]

However, not all patients are candidates for home dialysis. Those persons living alone or without family support (physical, emotional, psychological and intellectual), as well as those who are too ill to manage at home, are not likely home dialysis candidates. When both patient and partner work full-time, center dialysis may be more convenient and less time-consuming. If patient or partner has to quit work or go part-time, it may not be economically feasible or desirable to go on home dialysis if a center is convenient. Therefore, facilities providing chronic services need to be made available.

To complement the above dialysis services, in-hospital dialysis is also provided for hospitalized end stage renal disease patients at ESRD-approved facilities and may additionally be furnished, on an emergency basis, in non-ESRD-approved facilities. As yet DHHS has no formally established policy regarding the extent of reimbursable use of non-ESRD-approved facilities by hospitalized ESRD patients, but such a policy is forthcoming. Kidney dialysis may also be provided on an acute basis, e.g., for patients with acute reversible renal failure; under these circumstances, dialysis is not a part of the Medicare ESRD Program.

The capacity of a facility or center to perform chronic dialysis is determined by the number of stations it operates. This number is regulated by the State Health Planning and Development Agency through the certificate of need process and by the Federal government (Health Standards and Quality Bureau) which approves each facility's stations for reimbursement through the Medicare ESRD Program.

Under PL 92-603, ESRD services are coordinated nationally and are monitored for cost and quality by means of Network Coordinating Councils. Network Coordinating Council #2 (NCC #2) coordinates the availability of ESRD services in Alaska, Idaho, Montana, Oregon and Washington.

TRANSPLANTATION AND DIALYSIS SURVIVAL DATA

While there are no current national figures on organ transplantation, data on patient and/or graft survival are available from articles published in medical journals such as the JAMA and from individual transplant facility statistics. Tables 1 and 2 indicate patient and graft survival figures after transplantation.

TABLE 1

Survival Rates for ESRD Patients Receiving First Kidney Transplants

	1st. Yr.	2nd. Yr.	3rd. Yr.	4th. Yr.	5th. Yr.
Living Related Donor (77)	94%	94%	90%	90%	90%
Cadaveric Donor (152)	83%	80%	75%	75%	70%

Source: Universtiy of Oregon Health Sciences Center, Portland, Oregon for period June, 1973 through December, 1979.

TABLE 2

Graft and Patient Survival

	1 Year	2 Year
Graft survival, % (no. surviving/No. at risk)		
Living related		
HLA identical (Histocompatibility Antigen)	100 (23/23)	100(12/12)
HLA non-identical	90 (35/39)	88 (28/32)
Total	94 (58/62)	91 (40/44)
Cadaver		
Primary	54 (190/355)	44 (113/259)
Secondary	53 (26/49)	42 (16/38)
Total	54 (216/404)	43 (129/297)
Patient Survival,% (No. surviving/No. at risk)		
Living related	100 (62/62)	100 (44/44)
Cadaver	90 (341/381)	84 (237/281)

Source: Salvatierra, et al. Analysis of Costs and Outcomes of Renal Transplantation at One Center. *Renal Transplantation,* Vol. 241, No. 14:1469-1473, April 6, 1979.

The survival rates for ESRD patients receiving first kidney transplants are comparable with survival rates for hemodialysis patients as set out in Table 3 below.

TABLE 3

Comparison of Patient Survival — Transplantation & Hemodialysis

	Patient Survival			
	1 Yr.		2 Yr.	
	Facility A*	Facility B*	Facility A*	Facility B*
Transplantation				
Living Related Donor	100%	94%	100%	94%
Cadaveric	90%	83%	84%	80%
Hemodialysis				
In-center	85%		77%	
Home	93%		86%	

*A. Salvatierra, O., et al.: Analysis of Costs and Outcomes of Renal Transplantation at One Center. *JAMA* 241,14: 1469-1473. 466 consecutive transplants at UCSF from September, 1972 through August, 1976.

*B. University of Oregon Health Sciences Center, Portland, Oregon. 229 consecutive transplants from June, 1973 through December, 1979.

These comparable survival figures, and the new medical advances continually taking place in transplantation technology, make transplantation an increasingly viable alternative to maintenance dialysis. Quality of life improvements and rehabilitation of the successfully transplanted patient who is no longer dependent upon lengthy, continuing hemodialysis treatments are also strong considerations. Transplantation may also be an effective method of curtailing the high costs of the ESRD program by providing only episodic medical expense.

MOVEMENT THROUGH THE ESRD TREATMENT SYSTEM

Figure 1 shows how a patient can move through the system of dialysis and transplant alternatives. When a patient enters the ESRD Network, the evaluating physician must determine whether he/she is suitable for transplant or dialysis. The age and health status of the patient and the availability of a compatible donor are considered. Where a living related donor is not available, transplant patients would receive a kidney from a cadaveric donor. An unsuccessful transplant can result in death or in a return to dialysis. The pool of dialysis patients, therefore, includes:

- — Patients not suitable for transplant.
- — Patients suitable for transplant and awaiting a suitable donor.
- — Patients whose transplants were unsuccessful.
- — Patients suitable for transplant who do not elect that procedure.

Patients selected for dialysis are evaluated for their suitability for in center or home dialysis. Geographic access, life style, health status and psychological and social factors are considered. In addition, physician preference, reimbursement patterns, and the availability of treatment alternatives are also important factors in determining treatment site.

New amendments to the Medicare End Stage Renal Disease authorization (PL 95-292) signed June 13, 1978, place new emphasis on self-care dialysis by ESRD patients. The new amendments provide incentives for both home dialysis and self-care dialysis in a facility.

The costs associated with each of these treatment alternatives differ. The costs of transplantation are the lowest. Home dialysis is the second least costly alternative. Dialysis in a hospital or in a free-standing facility is the most costly treatment.

Based on studies cited earlier, average annual costs of home dialysis and center dialysis are $8,000 to $17,000 and $15,000 to $30,000 respectively. First-time transplantation costs are $20,000 to $25,000, with annual costs for physician's services and immuno-suppressive drug therapy of $2,000 to $3,000.

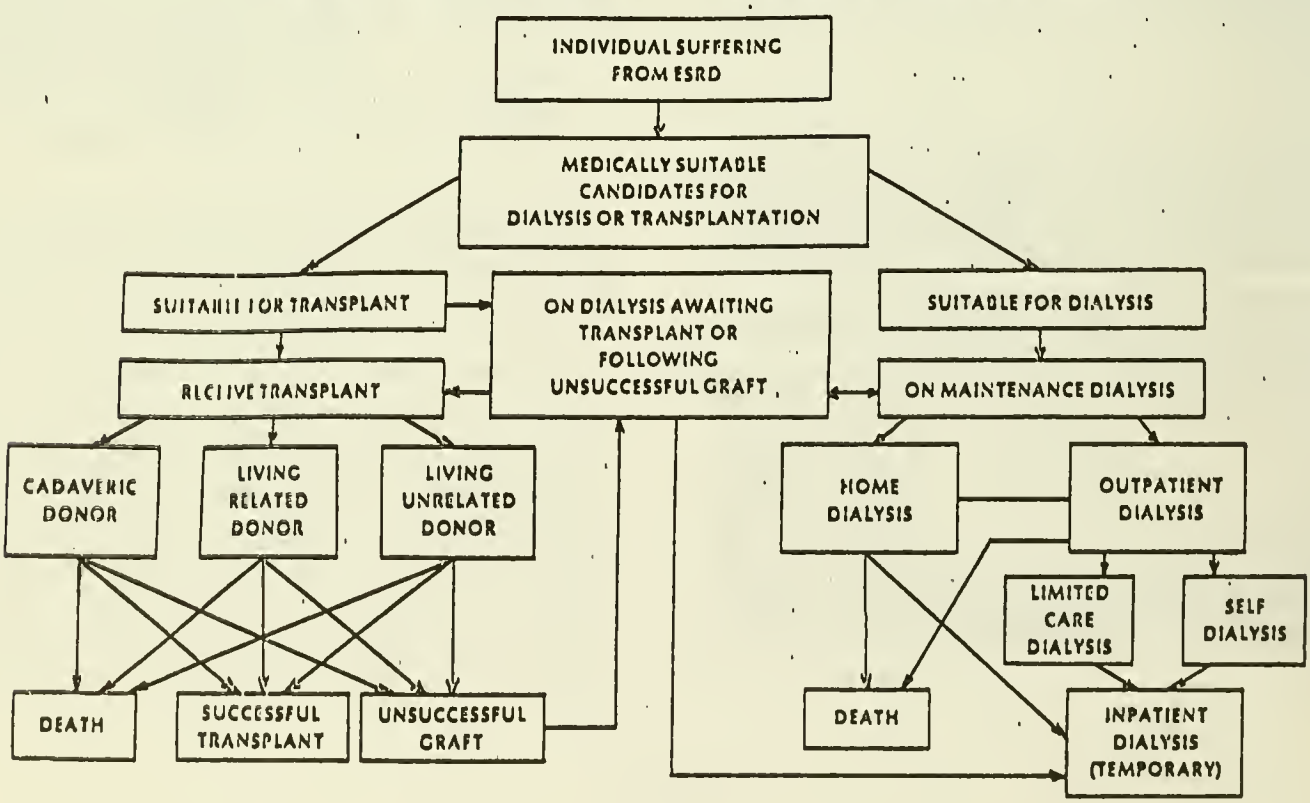
In addition, treatment costs may be higher when dialysis services are delivered in a hospital setting than when dialysis is performed in a free-standing facility. In part, the high-fixed costs of administrative services, the more complex mix of patients, and the broader range of services in a hospital unit account for the increased costs.

While transplantation appears to be significantly less costly than either home or center dialysis, the estimates were based on the assumption that one transplant will be successful. Some patients, however, will undergo more than one transplant, reverting to dialysis while awaiting a donor, and some will return permanently to dialysis. However, where the two-year survival rate for transplant is 75 percent or greater, transplant is still the least costly alternative. For patients for whom dialysis is the more appropriate treatment, home dialysis is significantly less costly than center dialysis. In addition, home dialysis can offer greater economic benefits to the patient since dialysis at home facilitates a patient's return to full-time employment.

Before 1973, there was very little third-party funding for dialysis and transplantation services. The limited nature of these funds, as well as the relative scarcity of transplant and dialysis services, led to the establishment of screening committees to choose suitable candidates for dialysis and transplant. The exceedingly high costs of ESRD treatment often disastrously depleted the financial resources of the victims and their families.

FIGURE 1

ESRD Patients within the System of Transplant and Dialysis Therapy



Congress acted to end this state of affairs by passing legislation making renal failure the only disease category singled out for inclusion in the Medicare Program (Section 2991 of PL 92-603). In order to assure that payment is made only for chronic kidney failure and not for acute episodes, the statute further provided that Medicare eligibility begin with the third month after the month in which renal dialysis was begun, and end with the twelfth month after the month in which an individual underwent a successful renal transplant. With regard to reimbursement, the statute gives the Secretary of Health and Human Services (DHHS) authorization to limit reimbursement for kidney dialysis and transplant to those treatment centers that meet requirements he/she may prescribe by regulation. These requirements must include a minimum utilization rate for covered procedures and a medical review board to screen the appropriateness of patients for proposed treatment procedures.

DHHS officials estimated that the ESRD program would cost $240 million during the first full year of operation, reaching an annual cost of $1 billion after a decade of operation. Reimbursements to facilities for maintenance dialysis services currently represent 40 percent of total Medicare expenditures for ESRD. Reimbursement to physicians for fees connected with dialysis accounts for another 15 percent of total costs.

But the Medicare ESRD Program had, after four years, already reached its ten-year projected levels of cost and demand. Costs have risen from $200 million in 1974 to $1.3 billion for Fiscal Year 1980. Over the same time frame, the number of patients has increased from 15,400 to 47,000.

High costs have resulted from an increase in demand for treatment. The incidence of the disease itself has not risen significantly but those patients who formerly could not afford either dialysis or transplantation (approximately 50 percent of the ESRD patients) demanded services. The prevalence of kidney patients eligible for Medicare benefits was projected to increase over the next decade from 13,000 to 50,000-60,000.

Medicare has different methods of reimbursement for hemodialysis care provided in free-standing facilities and in hospitals. Medicare recognizes a maximum charge screen of $150 per treatment and reimburses free-standing facilities at 80 percent of this charge. Hospital dialysis providers are reimbursed according to the Medicare cap or are reimbursed 80 percent of "allowable costs".

1.3 TRENDS

Congress created the ESRD Program in PL 92-603, Social Security Amendments of 1972. Section 2991 provides that treatment for ESRD will be covered under Medicare for a broad range of persons covered by Social Security regardless of age. When the program was enacted, DHEW recognized that setting up the program would take time and it established a "freeze" to prevent the admission of new facilities to the Medicare program pending the adoption of adequate "conditions of coverage" which suppliers of service must meet to qualify for Medicare reimbursement.

The health planning agencies — the HSAs, SHPDAs and SHCCs — are involved in this Medicare program because of the restriction that an ESRD service or facility must not only provide quality care to be eligible beneficiaries, as is the case for all Medicare participating facilities, but must, in addition, meet a need in its area.

Because one of the purposes of the Health Planning Act is to control increases in the costs of health care, it is important that the health planning agencies bring the ESRD facilities and services within their areas under the activities they are authorized to undertake: planning to aid the orderly growth of the service system, review of proposed new services and facilities under the cost-containing programs, and coordination within their areas and among areas to permit rational decision-making by independent providers and consumers.

Public Law 92-603, Section 2991 requires that all facilities providing ESRD services be organized into coordinated systems (networks) for the delivery of care to be eligible for Medicare reimbursement. The State of Montana is served, through a cooperative written agreement, by the End-Stage Renal Disease Network Coordinating Council #2 based in Seattle, Washington.

The Montana State Department of Health and Environmental Sciences and the Network Coordinating Council #2 have complementary purposes and seek to provide improved health through the availability and accessibility of reasonably-priced, high quality health services.

The Bureau of Health Planning and Resource Development has specific responsibilities to review and approve/disapprove, or, in some cases, recommendation of proposals for new or changed ESRD services and facilities in the State.

The Network Coordinating Council #2 is charged (under regulations implementing Section 2991 of PL 92-603) with assuring the availability of all appropriate services to ESRD patients in the Network area (including Montana); estimating future needs for ESRD services and facilities in the Network area; the review and recommendation of proposals for new or changed ESRD services in its area.

The incidence of ESRD (the number of new persons getting the disease each year) in Montana between 1976 and June 1978 appears to be somewhat less than the National figure of 50 per million. During this time period, 63 new ESRD patients were treated in Montana facilities — for an average annual incidence rate of 32.8 per million.

In the first half of 1979, the incidence of ESRD in Montana was about equal to the new National average of 60 new cases per million per year. Between January and June, 1979, 22 new cases of ESRD were diagnosed in Montana at an annual incidence rate of 57.9 per million.

It should be emphasized that much ESRD can be prevented or delayed. Hypertension screening programs to detect renal problems as well as complete evaluation and referral by primary physicians who find evidence of early renal disease can reverse or delay ESRD with currently available therapy. Further research in these and in nutritional areas is needed.

2.0 CURRENT SITUATION

The incidence rate of End Stage Renal Disease in Montana is approximately 58 new cases per 1,000,000 population.[6] The incidence level has increased in Montana and nationwide as a wider range of patients, including the elderly and persons with complex chronic diseases, such as diabetes, are being identified and treated for ESRD. As of June 30, 1980, there were 100 persons in Montana receiving dialysis treatment through the Medicare ESRD program and approximately 25 who had functioning transplants received through the program. Of the 100 dialysis patients, 62 percent used in-center dialysis as their routine treatment site and 38 percent were home dialysis patients.[7] In 1979, 12 patients of a total 85 dialysis patients died.

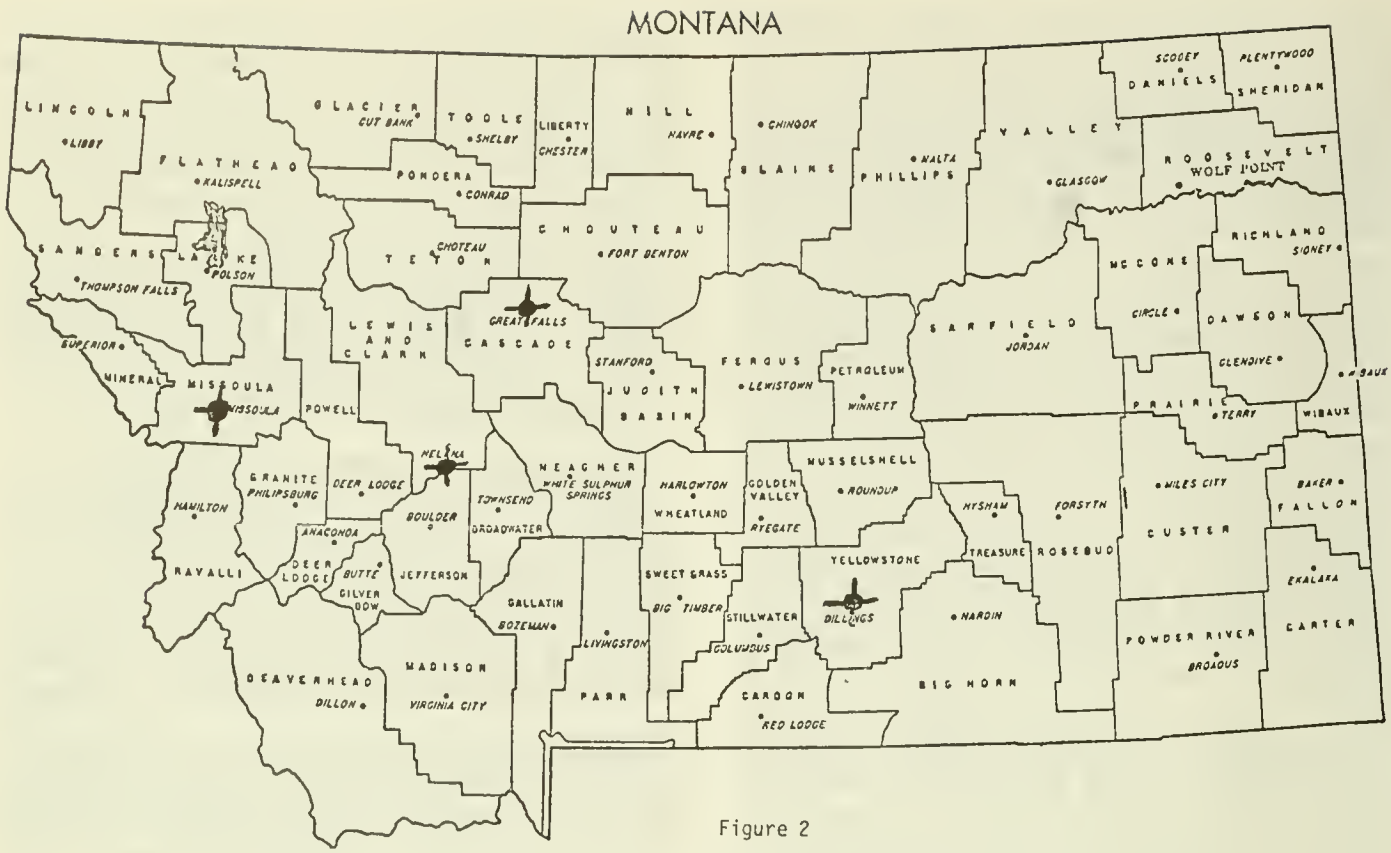


Figure 2
Montana Hospitals Providing ESRD Care

2.1 AVAILABILITY

Chronic dialysis services are available at four facilities in Montana: St. Patrick Hospital, Missoula; Columbus Hospital, Great Falls; St. Peter's Hospital, Helena; and Deaconess Hospital in Billings (see Figure 2).

Training programs for home dialysis patients are presently offered in three of the four facilities; St. Peter's in Helena, Columbus Hospital in Great Falls and Billings Deaconess Hospital.

Kidney self — help groups have been recently started in Montana. The Montana State Kidney Patient Association was organized to educate the public on the needs of a kidney patient, provide mutual assistance, work to influence legislation beneficial to kidney patients, and encourage the public to sign organ donor cards. Presently, the group has 65 members and works actively to help return every kidney patient to a well adjusted and productive life.

A significant number of Montana home dialysis patients have also completed the home dialysis training program at the Spokane & Inland Empire Artificial Kidney Center and continue to maintain a relationship with Spokane as well as with their closest facility in Montana. Since home dialysis services are becoming available at more Montana facilities, the inter-relationships with the Spokane AKC may change in the future.

Referrals for renal transplantation are made principally to the University of Washington and the University of Oregon and occasionally to the Universities of Minnesota or Colorado. Due to the low number of persons in Montana able to receive transplants each year, there are no immediate plans for transplant services in this State. Current Federal regulations establish that a minimum of fifteen transplant surgeries must be performed annually for a facility to be approved to offer transplant services.

Table 4 shows the capacity and utilization of Montana Dialysis Facilities as of December 31, 1979. Analysis of this Table shows Billings Deaconess' dialysis facility to be fully utilized and St. Peter's in Helena operating at maximum capacity. Both facilities presently have Certificate of Need expansion applications under review, St. Peter's for one additional station and Billings Deaconess for five more stations.

2.2 ACCESSIBILITY

With the location of the four hospitals in Montana offering ESRD care, the questions of how accessible an ESRD service is to its patients can be answered by looking at three general areas — travel, alternative modes of treatment, and governmental policy.

For Montana, travel is a problem. Because of the vastness, geographical differences and sparse populations within the State, it is virtually impossible for a patient to be within 45 minutes driving time to a facility as determined by the National Planning Guidelines. It is not economically feasible to place ESRD facilities in areas such as Eastern Montana as utilization rates would not be high enough to support these facilities.

In general, and under adequate driving conditions, a person can reach an ESRD center in Montana within 2 to 3 hours. This presents a tremendous problem for the person who has to receive treatment three times a week.

Two alternatives to this dilemma are the patient moving into the area where the ESRD facility is located or the utilization of home dialysis if the patient is able.

It is the intent of Public Law 92-603 to make treatment available to patients in need of those services. In the past, emphasis has been on institutional dialysis which has made

	Hemodialysis	*Peritoneal Dialysis*	*CAPD*
In-Center Staff Assisted Dialysis	Billings Deaconess St. Peter's Columbus St. Patrick	Billings Deaconess Columbus St. Patrick	
Home Dialysis Training	Billings Deaconess St. Peter's	Billings Deaconess Columbus	Billings Deaconess Columbus St. Patrick (planned 12/1/80)
In-Patient Dialysis for the Hospitalized ESRD Patient	Billings Deaconess St. Peter's Columbus St. Patrick	Billings Deaconess Columbus St. Patrick	Billings Deaconess
Acute Dialysis	Billings Deaconess St. Peter's Columbus St. Patrick	Billings Deaconess Columbus St. Patrick	
Services in Support of Home Patients	Billings Deaconess St. Peter's Columbus St. Patrick	Billings Deaconess Columbus St. Patrick	Billings Deaconess

TABLE 4
CURRENT CAPACITY OF MONTANA DIALYSIS FACILITIES
December 31, 1979

	Approved Stations	Patient[a] Capacity	Current Patients In-Center	Current Patients Home	Available Patient Capacity
Billings Deaconess, Billings	7 6[b]	22.4 19.2[c]	23	14	(0.6) (3.8)[d]
St. Peters, Helena	3	9.6	11	1	(1.4)
Columbus, Great Falls	7	22.4	16	4	6.4
St. Patrick, Missoula	2	6.4	3	13	3.4

a. Patient capacity at 80% utilization of 3.2 patients per station.
b. Billings Deaconess has justified one home training station on the basis of the number who were self/home trained there in 1979. For NCC #2 purposes, 6 stations are included in utilization calculations.
c. Patient capacity for 6 stations (number of approved stations less number of justified training stations).
d. Available patient capacity for 6 stations.
( ) Deficit capacity

accessibility to services a problem. However, guidelines are currently being developed to change the scope of service. Regulations have been developed (PS 95-292) which will create an environment in which home dialysis will become more accessible by making it economically feasible.

2.3 COST

In 1972, Congress passed an amendment to the Social Security Act, PL 92-603, which provided for Medicare coverage of all costs of dialysis and transplantation for ESRD patients who are: 1) fully or currently insured or entitled to monthly benefits under the Social Security Act; or are 2) dependents of such an individual. Thus, direct cost to the consumer of ESRD services was greatly reduced while cost to taxpayers became an issue. Annual costs nationally of the ESRD program were estimated at $600 million in 1977 (in Montana, $1,118,654). These costs are expected to double by 1981.[8]

Fewer than ten persons in Montana are not eligible for Medicare coverage for their ESRD services. These persons receive funding through the Veterans Administration or through State and Federal Medicaid funding. The Department of Vocational Rehabilitation has a pure state ESRD program which assists 92 patients and an additional 16 patients utilize the regular Vocational Rehabilitation services. These funds are restricted to use for treatment and related services, e.g., plumbing and other home modifications for a dialysis machine or limited funding for home helpers.

In-center dialysis involves three treatments per week per patient. The Federal-imposed ceiling of Medicare reimbursement at $150 brings the annual cost per patient to over $21,500. However, this Federal-imposed ceiling can be circumvented by individual facilities. In Montana, the reimbursement rates are higher as shown on Table 5. Variable factors such as travel and hospital operating costs make it possible for Montana's facilities to receive higher reimbursement rates than the $150 maximum established by Medicare.

There are many hidden costs for the home dialysis patient especially. Water costs, "free" home helper support by a family member, and some minor supplies are examples of costs born by the patient. Transportation to in-center dialysis can also be an appreciable "hidden" cost to the facility-based patient.

Approximate yearly costs per patient for in-center chronic dialysis at the four facilities are as follows:[9]

St. Patrick (Missoula)	$21,780
St. Peter's (Helena)	$24,650
Billings Deaconess (Billings)	$28,800
Columbus Hospital (Great Falls)	$27,000

Medicare reimburses 80% of the established charges.

A major objective of any treatment program should be to foster cost containment while not detracting from the quality of the patient's care. The type of care available to the patient can greatly influence the cost of treatment. In ESRD, the modes of treatment, beginning with the least expensive, are: related donor transplantation, home dialysis, self-care dialysis in a facility, cadaveric transplantation, and outpatient dialysis; the latter usually being cheaper in a free-standing unit than in a hospital. Current charges for dialysis treatment in Montana facilities are displayed in Table 5.

As noted earlier in the general cost discussion, there is a three-month period after diagnosis as an ESRD patient before reimbursement for in-center dialysis can be received. There is no such waiting period for patients being trained for or receiving home dialysis or transplantation. The cost during this three-month period must be borne by the patient, through private insurance, or written off by the facility as a loss.

Although costs for transplantation are very high, they occur once, not continuously, as does chronic dialysis. Cost for transplantation includes the cost of kidney retrieval, the transplant, and all necessary hospitalization, and follow-up services.

Approximately $460,000 was reimbursed for 23 transplants for Montanans during 1978.

The comparative lower cost of home dialysis to in-center dialysis stems mainly from greatly reduced staff needed when a large proportion of patients dialyze themselves, thus creating less of a need for extensive facilities.

Cost associated with home dialysis includes establishing a dialysis capability in the home and of any routine medical care needed in addition to the actual dialysis procedure. Home dialysis costs in Montana are shown on Table 6. These costs are estimates provided by the facilities.

TABLE 5
DIALYSIS CHARGES IN MONTANA FACILITIES — October 1980

Facility	In-center Chronic Dialysis		Self/Home Training			Dialysis for Hospital Patients	
	Hemo	Peritoneal	Hemo	Peritoneal	CAPD	Hemo	Peritoneal
Billings Deaconess°	$133	$133	$153	★	$145	$275	$275
St. Peter's°	197	★	227	★	★	227	★
Columbus +	193 246	250	172	172	193	218 240	250
St. Patrick +	152 193	174 522	★	★	★	152 193	174 522

\+ includes lab
° excludes lab
★ does not have
SOURCE: Network Coordinating Council #2, Seattle, Washington

Montana outpatient facilities were reimbursed $1,920,000 in 1978 compared to $2,400,000 billed.

TABLE 6
HOME DIALYSIS COSTS IN MONTANA — 1978

Facility	First Year	Respective Years
St. Peter's (Helena)	$20,000	$13,560
Billings Deaconess (Billings)	16,436	12,436
St. Patrick (Missoula)	14,560	10,500
Columbus Hospital (Great Falls)★	Not Available	Not Available

★ Columbus Hosptial began providing home dialysis services in 1980.

We attribute the lower costs of home dialysis at Missoula to the fact that they are more oriented to this type of treatment. Only one patient received in-center dialysis treatment at St. Patrick in 1977, thus increasing the cost of that treatment. As a service is utilized more, the cost of care should drop proportionately. This seems to be the case in Missoula. Since they utilize home dialysis more than other facilities, the cost of the procedures is comparatively lower.

Acceptability of health services is a measure of consumer satisfaction with services, and relates to manner of delivery, ease of obtaining services, and confidence in services provided. There are few, if any, measures of acceptability.

Because ESRD services are life-sustaining, this fact tends to overshadow considerations of acceptability. Federal Regulations require a comprehensive patient support system, including all aspects of social and financial counseling in facilities approved for reimbursement. To a large extent, this support aids patients in coping with available services and in expressing problems or concerns. Home dialysis patients also have opportunities for support since they are seen on a regular basis by both a facility and a physician.

The majority of physicians who treat ESRD in Montana believe that acceptance of the disease is enhanced by using home dialysis. Being able to assume major responsibility for one's own care, being able to dialyze in the privacy and comfort of home, and being able to maintain a flexible treatment schedule to allow for work and socializing, greatly reduces feelings of helplessness and depression which can interfere emotionally, mentally and physically with acceptance of the disease and treatment.

Another acceptability issue concerns mode of treatment selected, i.e., home dialysis, transplantation, or in-center dialysis. Because of the high home dialysis rate in Montana, the viability of this as an option for patients is demonstrated. Ultimately, choice of treatment mode is made by the patient together with the health care team and must consider medical, social, and psychological factors.

Acceptability of services also relates closely to accessibility of services — limited accessibility or accessibility problems may reduce the acceptability of services for some patients (see above for discussion of accessibility.)

The Medical Review Board of NCC #2 has expressed interest in determining patient knowledge of the different modalities of therapy and this would be one measure of patient satisfaction as expressed through their ability to knowledgeably select from the different treatment choices.

Dialysis services for ESRD patients require an efficient referral network since dialysis is necessary to sustain life. Federal regulations require that the governing bodies of all dialysis and transplant facilities ensure that the health care of each patient is under the continuing supervision of a physician and that a physician is available in emergency situations. There are several transition points which could affect continuity of ESRD services: initiation of ESRD services which may, depending on patient suitability and preference, include screening for availability of a living related donor; decisions regarding selection to dialyze in-center or at home; decisions and procedures to achieve a cadaveric transplant.

Each patient is required to have a long term program which is updated at least annually as part of his/her records. This document records the selection of a suitable treatment modality for each patient, and requires the involvement of a health care team including the physician director of the facility where the patient is currently being treated, the physician director of a facility which offers self/home dialysis training if not available where the patient is being treated, a transplant surgeon, a qualified nurse, qualified dietician, and a qualified social worker. The record must indicate that the patient, parent or legal guardian, as appropriate, is involved in the development of the patient's long term program, and due consideration is given to his/her preferences. The records are required to accompany patients on interfacility transfer. Renal dialysis facilities which are free-standing units must have a written affiliation agreement with a dialysis center (a hospital-based unit) to ensure prompt provision of inpatient care and inpatient services.

The Medical Review Board of ESRD NCC #2 is empowered to review continuity of care, the appropriateness of treatment, and the frequency of referrals through medical care evaluation studies.

Quality of care delivered to ESRD patients is generally monitored through state and Federal survey and certification processes, as well as by internal audit and review of individual facilities by the Medical Review Board of NCC #2. The Joint Commission on Accreditation of Hospitals has also developed standards specific to in-hospital hemodialysis units and review participating hospitals on a regular basis.

As a further quality assurance measure, the Federal Regulations establishing the ESRD program have mandated training standards for personnel involved in the provision of care. While a formal qualification per se does not guarantee quality, it does provide evidence of minimal competence. Patient survival as another measure of quality varies more as a result of the underlying cause of the renal disease than from a given mode of treatment.

3.0 FUTURE RESOURCE REQUIREMENTS

3.1 AVAILABILITY

In the "State of Montana ESRD Services Plan" developed jointly by the ESRD Network Coordinating Council #2 (NCC #2)and local and State health planners in Montana, projections for the estimated ESRD population in Montana until 1985 are made through the use of a formula which includes the annual incidence rate, mortality rate, anticipated general population growth, and the number of current ESRD patients. In using these data for planning purposes, it should be noted that:

(1) Patient numbers on dialysis may be overestimated in the future because the basis for calculation included an overall death rate of fifteen percent. It is likely that this death rate may rise statewide. Similarly, an overestimate in dialysis patients could result from an increased availability of kidneys for transplanation.

(2) Network Coordinating Council #2 and Montana planning agencies have adopted the aim that at least 50 percent of all dialysis patients in Montana will be treated by home dialysis. Fifty percent may become the absolute minimum, particularly if current Federal legislation to provide incentives for home dialysis and transplantation and to restrict reimbursement for in-center dialysis becomes effective in the near future.

(3) The use of two patient shifts, six days weekly, at 80 percent utilization, to estimate the requirements for dialysis stations is an extremely low utilization rate adopted by Medicare at a time when average dialysis times were 5-8 hours. With present dialysis lasting 3-5 hours, three patient shifts or two nursing shifts might be considered preferable.

(4) The projections for station need include the following additional allowance for home training stations: stations which are justified home training stations are exempted from need projections by 100 percent. Given an incidence rate of 60 new cases per million population and a 15 percent annual mortality rate, the following projections are obtained.

Year	ESRD Population ★ +
1980	127.0
1981	142.4
1982	155.8
1983	167.5
1984	177.8
1985	186.9

★ End of year projection
\+ Includes both transplant and dialysis patients
See Figure 3 for patient distribution

Based on the ESRD population projections developed by ESRD Network Coordinating Council #2, the capacity of current services and facilities in Montana to meet future need can be evaluated. Tables 7 and 8 represent the dialysis patient projections for in-center and home services by region and for the state and include the consequent demand for in-center stations, given the projections developed above.

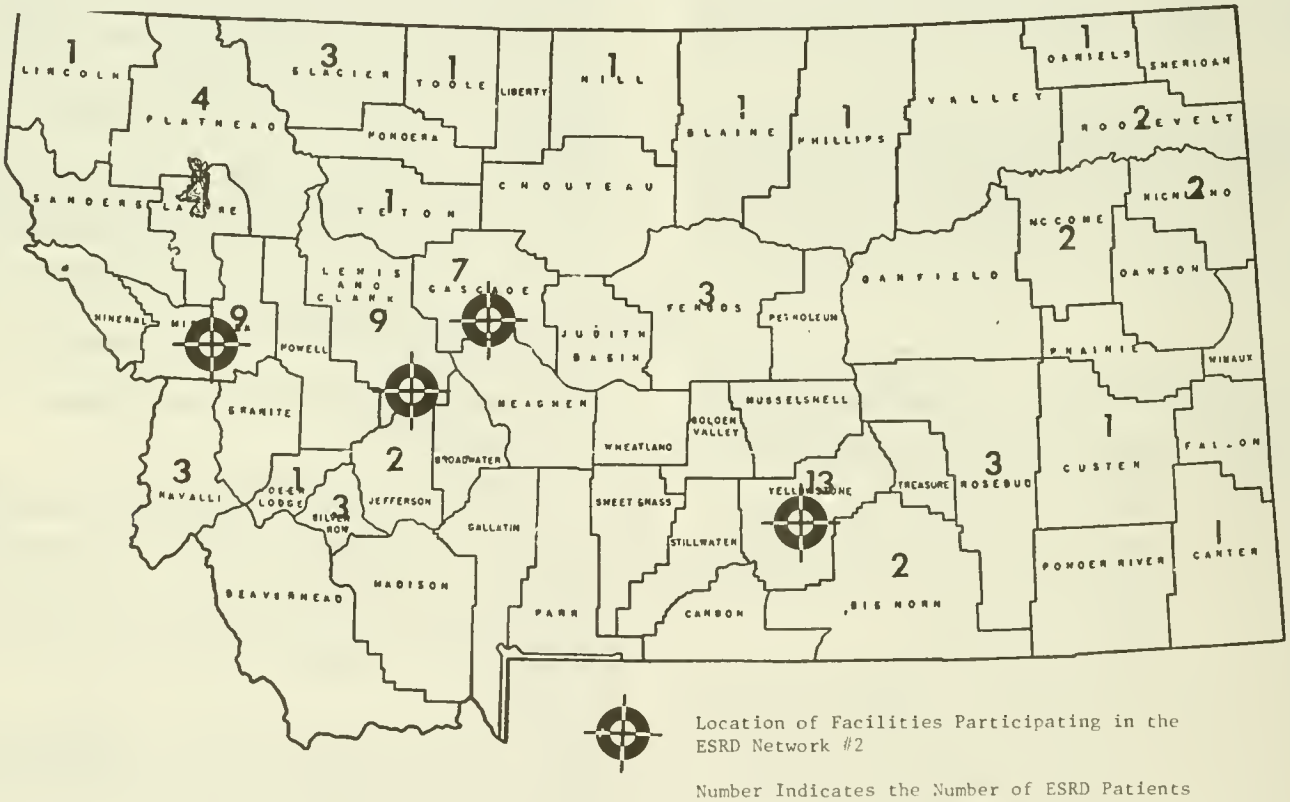
Review of the current ESRD station numbers and distribution (Columbus 7, St. Patrick 2, St. Peter's 3, and Billings Deaconess 7, (one of which is a justified home training station), indicates some growth in facilities will be required over the next five years to accommodate the growth in facility-based patients. Growth should be distributed, in part by the areas of projected population growth.

The projections for station need indicate that the residents of Montana should have sufficient ESRD resources to meet the probable demands of 120 dialysis patients by the end of 1980 and 180 dialysis patients by the end of 1985. These projections indicate there is probably a need for one additional station in 1980 and 10 additional stations by 1985. These stations should be developed at existing facilities or in areas that can meet the minimum size requirements.

These projections are also based on the assumptions that of new ESRD patients:

— Fifteen percent will die, and
— Fifteen percent will have successful kidney transplants (25% will have transplants but 40% will reject their new kidney and require chronic dialysis.) Of the remaining new patients, at least

FIGURE 3
Distribution of ESRD Patients & Facilities in Montana 1978



Location of Facilities Participating in the ESRD Network #2

Number Indicates the Number of ESRD Patients Living in the County (1978)

Source: Unpublished data from ESRD Network Coordinating Council #2

TABLE 7

MONTANA YEAR END PATIENT DISTRIBUTION PROJECTIONS
ANNUAL INCIDENCE AT 60/MILLION: MORTALITY AT 15 PERCENT

Year	Total Population	Annual Incidence	Functioning Transplants	Total Dialysis Population	Home Population	In-Center Population	Station Need
					50%	50%	
Northwest (1978 Total Dialysis Population - 18)							
1979	186,290	11.2	1.7	23.1	11.6	11.6	3.6
1980	188,500	11.3	1.7	27.6	13.8	13.8	4.3
1981	190,710	11.4	1.7	31.5	15.8	15.8	4.9
1982	192,920	11.6	1.7	33.4	16.7	16.7	5.2
1983	195,130	11.7	1.8	36.6	18.3	18.3	5.7
1984	197,340	11.8	1.8	39.3	19.7	19.7	6.2
1985	199,550	12.0	1.8	41.8	20.9	20.9	6.5
North Central (1978 Total Dialysis Population - 14)							
1979	149,700	9.0	1.4	18.2	9.1	9.1	2.8
1980	150,500	9.0	1.4	21.7	10.9	10.9	3.4
1981	151,300	9.1	1.4	24.8	12.4	12.4	3.9
1982	152,100	9.1	1.4	27.4	13.7	13.7	4.3
1983	152,900	9.2	1.4	29.7	14.9	14.9	4.7
1984	153,700	9.2	1.4	31.7	15.9	15.9	5.0
1985	154,500	9.3	1.4	33.5	16.8	16.8	5.3
South Central (1978 Total Dialysis Population - 18)							
1979	160,340	9.6	1.4	22.1	11.1	11.1	3.5
1980	163,100	9.8	1.5	25.6	12.8	12.8	4.0
1981	165,860	10.0	1.5	28.8	14.4	14.4	4.5
1982	168,620	10.1	1.5	31.6	15.8	15.8	4.9
1983	171,380	10.3	1.6	34.1	17.1	17.1	5.3
1984	174,140	10.4	1.6	36.2	18.1	18.1	5.7
1985	176,900	10.6	1.6	38.2	19.1	19.1	6.0
Southwest (1978 Total Dialysis Population - 17)							
1979	182,820	11.0	1.7	22.2	11.1	11.1	3.5
1980	184,300	11.1	1.7	26.5	13.3	13.3	4.2
1981	185,780	11.2	1.7	30.4	15.2	15.2	4.8
1982	187,260	11.2	1.7	33.7	16.9	16.9	5.3
1983	188,740	11.3	1.7	36.6	18.3	18.3	5.7
1984	190,220	11.4	1.7	39.1	19.6	19.6	6.1
1985	191,700	11.5	1.7	41.3	20.7	20.2	6.5
Eastern (1978 Total Dialysis Population - 15)							
1979	98,910	5.9	0.9	16.9	8.5	8.5	2.7
1980	99,100	6.0	0.9	18.6	9.3	9.3	2.9
1981	99,290	6.0	0.9	20.0	10.0	10.0	3.1
1982	99,480	6.0	0.9	21.2	10.6	10.6	3.3
1983	99,670	6.0	0.9	22.2	11.1	11.1	3.5
1984	99,860	6.0	0.9	23.1	11.6	11.6	3.6
1985	100,050	6.0	0.9	23.8	11.9	11.9	3.7
State (1978 Total Dialysis Population - 82)							Rounded
1979	778,060	46.7	7.0	102.4	51.2	51.2	16
1980	785,500	47.1	7.1	119.9	60.0	60.0	19
1981	792,940	47.6	7.1	135.3	67.7	67.7	21
1982	800,380	48.0	7.2	148.6	74.3	74.3	23
1983	807,820	48.5	7.3	160.2	80.1	80.1	25
1984	815,260	48.9	7.3	170.5	85.3	85.3	27
1985	822,700	49.4	7.4	179.5	89.8	89.8	28

TABLE 8

EXPECTED NUMBER OF ESRD PATIENTS AND STATIONS NEEDED BY SUBAREA IN MONTANA
1980-1985

Subarea	Year	Number ESRD Patients	Expected New Cases Per Year	Expected Number Receiving Center Dialysis	Number Dialyses To Be Performed*	Number Stations Which Can Be Justified	Approved Stations
Northwestern	1980	29.3	11.3	13.8	2,153	4.3	2
	1981	33.2	11.4	15.8	2,465	4.9	
	1982	35.1	11.6	16.7	2,605	5.2	
	1983	38.4	11.7	18.3	2,855	5.7	
	1984	41.1	11.8	19.7	3,073	6.2	
	1985	43.6	12.0	20.9	3,260	6.5	
North Central	1980	23.1	9.0	10.9	1,700	3.4	7
	1981	26.2	9.1	12.4	1,934	3.9	
	1982	28.8	9.1	13.7	2,137	4.3	
	1983	31.1	9.2	14.9	2,324	4.7	
	1984	33.1	9.2	15.9	2,480	5.0	
	1985	34.9	9.3	16.8	2,621	5.3	
South Central	1980	27.1	9.8	12.8	1,997	4.0	7
	1981	30.3	10.0	14.4	2,246	4.5	
	1982	33.1	10.1	15.8	2,465	4.9	
	1983	35.7	10.3	17.1	2,668	5.3	
	1984	37.8	10.4	18.1	2,824	5.7	
	1985	39.8	10.6	19.1	2,980	6.0	
Southwestern	1980	28.2	11.1	13.3	2,075	4.2	3
	1981	32.1	11.2	15.2	2,371	4.8	
	1982	35.4	11.2	16.9	2,636	5.3	
	1983	38.3	11.3	18.3	2,859	5.7	
	1984	40.8	11.4	19.6	3,058	6.1	
	1985	43.0	11.5	20.7	3,229	6.5	
Eastern	1980	19.5	6.0	9.3	1,451	2.9	
	1981	20.9	6.0	10.0	1,560	3.1	
	1982	22.1	6.0	10.6	1,654	3.3	
	1983	23.1	6.0	11.1	1,732	3.5	
	1984	24.0	6.0	11.6	1,810	3.6	
	1985	24.7	6.0	11.9	1,856	3.7	
State	1980	127.0	47.1	60.0	9,360	18.8	19
	1981	142.4	47.6	67.7	10,561	21.2	
	1982	155.8	48.0	74.3	11,591	23.2	
	1983	167.5	48.5	80.1	12,496	25.0	
	1984	177.8	48.9	85.3	13,307	26.7	
	1985	186.9	49.4	89.8	14,009	28.1	

*Does not include back-up dialysis for home patients (estimated at 12/patient/year) or transient dialysis.

— Fifty percent will be trained for home dialysis, working toward a goal of 50% of all dialysis patients at home by 1985. It is recognized that
— Each ESRD patient will undergo dialysis approximately 156 times per year, based on three dialyses per week and that
— A fully utilized dialysis station should perform approximately 500 dialyses per year, assuming an average of two treatment runs per day, six days per week, and adjusted for an optimal utilization of 80 percent.

For cost efficiency, the smallest ESRD chronic dialysis unit should have at least two dialysis stations and be able to meet the minimum utilization rates (see "Recommended Review Criteria for ESRD") without drawing patients from the existing home population.

Table 8 presents estimates of the ESRD population by subarea through 1985, the number of in-center dialyses expected to be performed annually, and the number of stations which can be justified. These data can be used to identify areas of Montana which may soon be appropriate locations for new dialysis stations.

3.2 ACCESSIBILITY

Projections developed by the Network Coordinating Council #2 show that Montana should have sufficient ESRD resources to meet the probable demands of 120 dialysis patients by the end of 1980 and 180 dialysis patients by the end of 1985. To meet these probable projections, there may be the need for one additional station in 1980 and 10 additional stations by 1985.

The NCC #2, in cooperation with the Montana State Health Planning and Development Agency and the Health Systems Agency, is charged with assuring the accessibility of all appropriate services to ESRD patients in the State by means of:

1. Estimating future needs for ESRD services and facilities.
2. Monitoring the appropriateness and quality of ESRD treatment services and,
3. Review of proposals for new or changed ESRD services in Montana.

Through this agreement, Montana should be assured of a controlled and orderly growth of ESRD services which will make these services accessible to all who need them.

Because of travel problems and a sparse and rural population in many sections of the State, it is not practical to establish time limits to ESRD facilities across Montana. Therefore, the continued development of home health care services will remove the travel barrier and allow patients to schedule dialysis at their own convenience.

3.3 COST

Coverage of dialysis services under Medicare has virtually eliminated income barriers to in-center dialysis services.

To those not eligible for Medicare and who do not have adequate health insurance, other funding sources such as Vocational Rehabilitation have proved to be sufficient in Montana.

However, to assure the growth of home and self-care dialysis, the NCC #2, Montana SHPDA and HSA, need to encourage changes in Medicare reimbursement for home dialysis to eliminate current disincentives (e.g., extend coverage for an assistant to the dialysis patient and reimbursement for disposable supplies, etc.).

4.0 GENERAL ANALYSIS

4.1 ALTERNATIVES AND ISSUES

Home dialysis may be the preferred treatment mode for a number of Montana residents. Given the limited access to center-based dialysis, a large percentage of ESRD patients in Montana are confronted with the choice between relocating to be within a reasonable distance from a center or learning to dialyze at home. In addition to the access considerations, many physicians and patients believe the control assumed by the patient using home dialysis increases his/her independence, promotes assimilation of the real adjustments required with ESRD treatment into the patient's daily life and, for each home patient, decreases the probability of infection. From a systems perspective, home dialysis represents a lower cost treatment mode while providing comparable quality. Constraints on the amount of dialysis that can be in the home are (1) access and availability of trained home helpers, (2) the comparative health of the patient, and (3) patient choice.

Home helpers may be a family member or area resident who attends the home training program with the patient and is well informed in the care and dialysis process of that patient. Although the Department of Vocational Rehabilitation has some funds for home helpers and Medicare is considering providing some limited coverage for helpers, continued funding remains a problem.

Patient choice may be affected by both patient attitude and the influence of health care professionals, economic incentives or obstacles, and other barriers to access, awareness of alternative treatment forms and family/social considerations. The complex nature of some health problems require frequent monitoring while on dialysis; these patients should not be considered for home dialysis. Although nationally a greater percentage of persons with complex medical problems are entering dialysis care, more can be done to encourage use of home dialysis by others. Increased availability of home dialysis training programs may positively affect use of home dialysis. This has been the experience in Billings where an increasing number of patients are seeking home training.

The causes of ESRD are many and varied and, frequently, unamenable to preventive measures. One disorder which may result in ESRD is uncontrolled hypertenison. To decrease the potentially catastrophic results of advanced hypertension disease such as heart disease, stroke, and ESRD, hypertension screening programs should be supported.

Although Montana has many areas where lack of geographic access can be the compelling argument in requests for new services, in dialysis the combination of quality and cost considerations preclude widespread development of dialysis facilities. The diverse range of medical and dialysis needs among the ESRD population require that staff provide these services on a continued rather than intermittent level to be assured of meeting quality standards. In dialysis, the machine costs are negligible compared to the staffing, supplies, and other operating costs. A minimum of a two-station unit has been determined to be the appropriate size for Montana.

The Federal government's Medical Information System and the Network Coordinating Council #2 are the principal collectors of data on the ESRD patient population and the costs of ESRD services. Many of the assumptions used in developing this plan are taken from data provided by these sources and from expert opinion. In areas where data are capable of being collected and verified (i.e., incidence, mortality rates, numbers of patients by treatment mode, etc.) these data should be compiled and serve to replace expert opinion.

5.0 EXCEPTIONS TO NATIONAL GUIDELINES

The national guidelines state that HSPs should be consistent with DHHS regulations specifying conditions for coverage of ESRD services. For Montana the following standard is applied:

> "ESRD minimal utilization rates for dialysis facilities performing greater than 20% of the dialyses on outpatients in a Standard Metropolitan Statistical Area (SMSA) of less than 500,000 or in an area not included in an SMSA are:
>
> **Unconditional Approval:** Three or more dialysis stations with a performance of an average of 4.0 or more dialyses per station per week.
>
> **Conditional Approval:** Two dialysis stations with performance of an average of 4.0 or more dialyses per station per week."

The 1978 utilization at Great Falls, Helena and Billings ESRD facilities satisfies these minimal criteria for unconditional approval. The utilization of the ESRD service in Missoula is less than that required for "conditional approval." This, however, is justified because of their emphasis on home dialysis. Thirteen of the sixteen patients in the Missoula area in 1979 being dialysed for ESRD were on home dialysis. It would be inappropriate for a facility to develop its utilization at the expense of its home dialysis program. At the same time, the number of dialysis patients in the Missoula area (16) require that an ESRD capability be available in the community.

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APPENDIX I

RECOMMENDED REVIEW CRITERIA FOR END STAGE RENAL DISEASE:

1) Existing maintenance dialysis units should be operating at or near optimal utilization before new units are considered. Optimal utilization is considered to be 80 percent for two treatment runs per day, six days a week. Facilities presently offering ESRD units should expand this service before new units are established elsewhere.
2) Facilities proposing ESRD services should have provisions to assure that all modes of treatment and rehabilitation are available to all individuals with end stage renal disease.
3) Proposed renal support systems in Montana should maintain high quality standards in accordance with regulations set forth in detail in the Federal Register.
4) All ESRD units for chronic in-facility dialysis should have at least two stations.
5) All ESRD units should be supervised by a physician trained in kidney diseases (i.e., a nephrologist).

3.3
NEONATAL INTENSIVE CARE UNITS

GOAL:

The three existing level II neonatal intensive care units in Montana should be maintained and updated in accordance with technology and guidelines from professional societies.

OBJECTIVES:

1. By 1985, develop funding sources for physician directors of Level II units.
2. By 1985, encourage physicians at Level I facilities to recognize and use the regionalized system of neonatal referral and transport.
3. By 1985, involve obstetricians in identifying high-risk mothers.

LONG RANGE ACTIONS:

1. By 1983 design a more detailed reporting system which would indicate more accurate length of stay at Level I and II and that would delineate transfers from Level I to Level II and Level II to Level III (Salt Lake City, Denver, etc.).

1.0 BACKGROUND

1.1 SERVICE DEFINITION

Hospital services for the infant can be categorized into three levels of care,Levels I, II, and Level III units. Level III units are usually affiliated with medical school environments and are not found in Montana. Level I and II units are defined as follows:

Level I

These are hospitals whose function is to provide services primarily for uncomplicated maternity and newborn patients. The number of deliveries in these hospitals is too low to provide an adequate economic base for complex obstetric and newborn care and to provide the caseload needed to attract the necessary staff.

The critical considerations in the care of patients anticipating delivery in these hospitals are the earliest possible detection of the "high-risk" parturient and newborn and the availability of trained personnel and facilities to provide competent emergency obstetric and newborn care.

In metropolitan and suburban areas, such units should be encouraged to consolidate into larger services in one or two hospitals. Geographic remoteness or difficulties in transportation may demand that some level I units continue in operation, but these must be assisted in developing channels for consultation, referral and transport for mothers or infants with complications.[1]

Level II

Level II units will be located in the larger urban and suburban hospitals where the majority of deliveries occur. The number of these units will increase as smaller local hospital units are consolidated. These level II units will provide a full range of maternal and neonatal services for uncomplicated patients and for the majority of complicated obstetrical problems and certain neonatal illnesses. They will have a highly-trained multidisciplinary staff and modern, well maintained equipment.

While level II hospitals will vary considerably in their capabilities, the volume of serious obstetrical complications and the number of very sick newborns in most of these hospitals may not be sufficient to justify the estabiishment of a comprehensive intensive care perinatal unit.

Thus, a few patients with severe obstetric complications and some seriously sick newborns may, after consultation, be transferred to a level III unit.[2]

This component will concentrate on the level II units and other facilities offering neonatal intensive care services in Montana. These units are specially designed to provide specialized services to the sick, prematurely born, and term-infants during the neonatal period (first 28 days after birth).

Typically, those conditions and illnesses treated in neonatal units are:

1) prematurity;
2) respiratory disease, birth asphyxia, and hyaline membrane disease;
3) congenital heart disease;
4) other congenital anomalies;*
5) infectious disease including sepsis, meningitis, and pneumonia;
6) metabolic diseases.

(In some cases of congenital anomalies and extensive cardiac work-ups referral to Level III might be indicated.)

These six conditions and illnesses account for approximately 80 percent of all infant (under one year) deaths.

After correcting for variables such as social class, maternal age, parity, and race[3], gestation age and birth weight are the best indicators of whether or not a baby will survive past the neonatal stage. Infants who weigh less than 2,500 grams (5 1/2 pounds) have a death rate of about 22 times greater than those babies who weigh more than 2,500 grams. These lower weight babies account for two-thirds of all neonatal deaths[4]. Prior to the establishment of level II units, those low weight infants that did survive the neonatal development period were subject to a high probability of neurological damage.

Regionalization and specialization describe the two major trends in providing intensive care to the neonate as evidenced by these indicators:

- — the development of regional centers for high risk delivery services with intrapartum ICUs.
- — the referral of neonatal intensive care cases in regional centers, for optimal care of the neonate and cost-effectiveness for the hospital supplying the service,
- — the involvement of both the father and mother in prenatal education, the birth process, and infant contact during the first days of life,
- — use of neonatalogists (board certified pediatricians with specialized training in neonatology) in level II and level III units in the care of high risk infants,
- — complex diagnostic and treatment procedures, with intensive physiological maternal and fetal monitoring.

*Parts of this component were taken directly from References 1 and 2. Acknowledgement is made and appreciation expressed for us being able to utilize the information from these reports. Full credit for theory and data rests with the authors.

NEONATAL UNITS

LEVEL		II	II	II	* II	* II	* II	I	I
		St. Vincent (Billings)	Montana Deaconess (Great Falls)	Missoula Community (Missoula)	St. James Community (Butte)	Kalispell Regional (Kalispell)	Holy Rosary (Miles City)	Bozeman Deaconess (Bozeman)	St. Peters Hospital (Helena)
Births	1975	1844	1290	1082	549	555	-	547	-
	1976	1950	2302	1326	577	653	-	533	-
	1977	2083	1229	1301	580	431	-	652	-
	1978	2154	1217	1300	510	707	-	667	-
	1979	2222	1193	1427	510	726	364	728	876

Neonatal Unit Statistics (1978-1979)	St. Vincent (Billings)		Montana Deaconess (Great Falls)		Missoula Community (Missoula)		St. James Community (Butte)		Kalispell Regional (Kalispell)		Holy Rosary (Miles City)		Bozeman Deaconess (Bozeman)		St. Peters Hospital (Helena)	
	78	79	78	79	78	79	78	79	78	79	78	79	78	79	78	79
Number Beds	10	10	10	10	6	10	4	4	3	3	2	2	-			
Patient Admissions	314	396	142	146	83	99	40	40	63	61	-	-	-	-	-	-
Patient Days	2705	3223	622	2050	1252	1400	311	311	215	515	-	-	-	-	-	-
Average Length of Stay (Days)	8.6	8.1	4.4	14.0	15.1	14.1	7.8	7.8	3.4	8.4	-	-	-	-	-	-
Percent Occupancy	74.1	88.3	17.0	56.2	57.2	38.4	21.3	21.3	19.6	47.0	-	-	-	-	-	-

TABLE 1 - Number of Hospital Births (1975-1979) and 1978, 1979 Utilization Statistics for Neonatal Intensive Care Units in Montana

SOURCE: Unpublished Data from Hospital Annual Reports

* These Institutions will be awarded final Level II designation after inspection and approval by an appointed Ad Hoc Committee

1.2 SERVICES AND SETTINGS

Montana historically has had three level II centers, Missoula Community, Missoula; Montana Deaconess, Great Falls; and St. Vincent Hospital in Billings. Of the three level II centers, St. Vincent in Billings indicates the highest occupancy rate at 88.3 percent for 1979 and 74 percent for 1978.

St. James Hospital in Butte; Kalispell Regional Hospital in Kalispell; and Holy Rosary Hospital in Miles City all have level II neonatal capability subject to the approval of an appointed Ad Hoc Committee.

To these ends it should be noted that level III, of which Montana has no capability, are the most straight forward to define in terms of standards and criteria which have been developed by the American Academy of Pediatrics and the American College of Obstetrics and Gynecology.

1.3 TRENDS

The American Academy of Pediatrics Committee on the Fetus and Newborn, as a technical advisory committee, and the Section on Perinatal Pediatrics, representing pediatricians with a special interest in neonatalology, have examined current practice and manpower needs in neonatal pediatrics. This effort has been undertaken to provide current objective information and make recommendations regarding personnel numbers and distribution.

Advances in perinatal knowledge have resulted in major technological achievements and improved care of pathophysiologic states as well as enhanced understanding of emotional aspects of the human birthing experience. General acceptance of perinatal regionalization and formal recognition of perinataology as a subspecialty, including sub-boards of Neonatal-Perinatal Medicine of the American Board of Pediatrics, and Maternal-Fetal Medicine of the American Board of Obstetrics and Gynecology, have occurred in this decade. In March 1977, an ad hoc group of neonataologists, with representation from obstetrics, nursing, government and voluntary organizations, met to quantify U.S. neonatal manpower needs. Progress was made in conceptualizing aspects of the problem, but a consensus regarding validity of conclusions was not reached and a formal report not written. The concerns leading to and from that conference, plus late communications to the Section and Committee, emphasized an acute need for additional effort.

Manpower needs to care for sick infants can be estimated from different data such as total number of births; estimates of infants requiring special care, especially the low-birthweight or prematurity rate; perinatal mortality rates; and aspects of provider services, including number of beds available for neonatal care and length of stay. Estimates should take into account the three-level care system now generally accepted.

It is impossible to give a single answer to the question of beds needed per 1,000 live births without considering the demography and the modifying factor which is presented in the Future Resource Requirement section of this component.

The statewide trend in Montana has been one of trying to more closely define level II services which exist in the state and to ascertain which of the level II type services might currently be offered in level I instituitions. A local neonatalogist is participating on national committees to assist in defining specific criteria and standards to be utilized in the future.

There continues to be interest in improving the existing transport system to take advantage of the latest life support technology and to continue to update facilities and services where appropriate and take advantage of updated technology.

2.0 CURRENT SITUATION

2.1 AVAILABILITY

Currently there are six hospitals in Montana offering neonatal intensive care services. The cities in which these are located and their respective catchment areas are shown in Figure 1a and 1b. As shown in the figure, the service areas are not clear-cut, with several outlying counties claimed by more than one neonatal service.

Table 1 shows the number of births occurring in each of these hospitals between 1975 and 1979 and presents selected utilization statistics for 1979 for each of the units.

Based on these statistics, Billings, Great Falls and Missoula are considered level II units. Butte, Kalispell and Bozeman do not appear to have the case load and staffing to be large regional centers. They do, however, provide some level II services to their surrounding areas.

All six of the hospitals have 24-hour lab service, 24-hour X-ray service, cardiac, respiratory and blood pressure monitors. All except Bozeman Deaconess have respirators. Great Falls, Billings and Missoula have capability to provide hyperalimentation (the administration of as close as optimal amount of nutrients).

2.2 ACCESSIBILITY

Since most of the population is not urban, it is likely that more than 25-30 percent of the population will be more than 1/2 — 1 hour away from a Regional Center (Level II). For these rural and geographically more remote groups, special transportation (including by air) is necessary in Montana. Ideally, women carrying risk pregnancies should be moved to an area near a level II or III close to term or be admitted early.

The size of a service area is irrelevant except in regard to its effect on travel time. Natural barriers or climate may be equally important to mobility. It is possible to have a transport organization which could move a problem either in pregnancy or in the newborn to an appropriate special care center within three hours from a remote area.

2.3 COST

The care rendered by level II units is expensive. St. Vincent Hospital has reported a cost of $575 per day for Neonatal Intensive Care Unit. A recent study of Cedars of Lebanon Medical Center (Los Angeles), a level III center, indicated the average cost for a surviving infant under 1,200 grams is $40,287. If the statistic were adjusted for non-survivors, the cost per survivor (under 1,200 grams) is $61,641[5]. John Whittinghill, M.D. of Billings, estimates the average cost for infants over 1,200 grams is between $20,000 and $25,000 nationally.

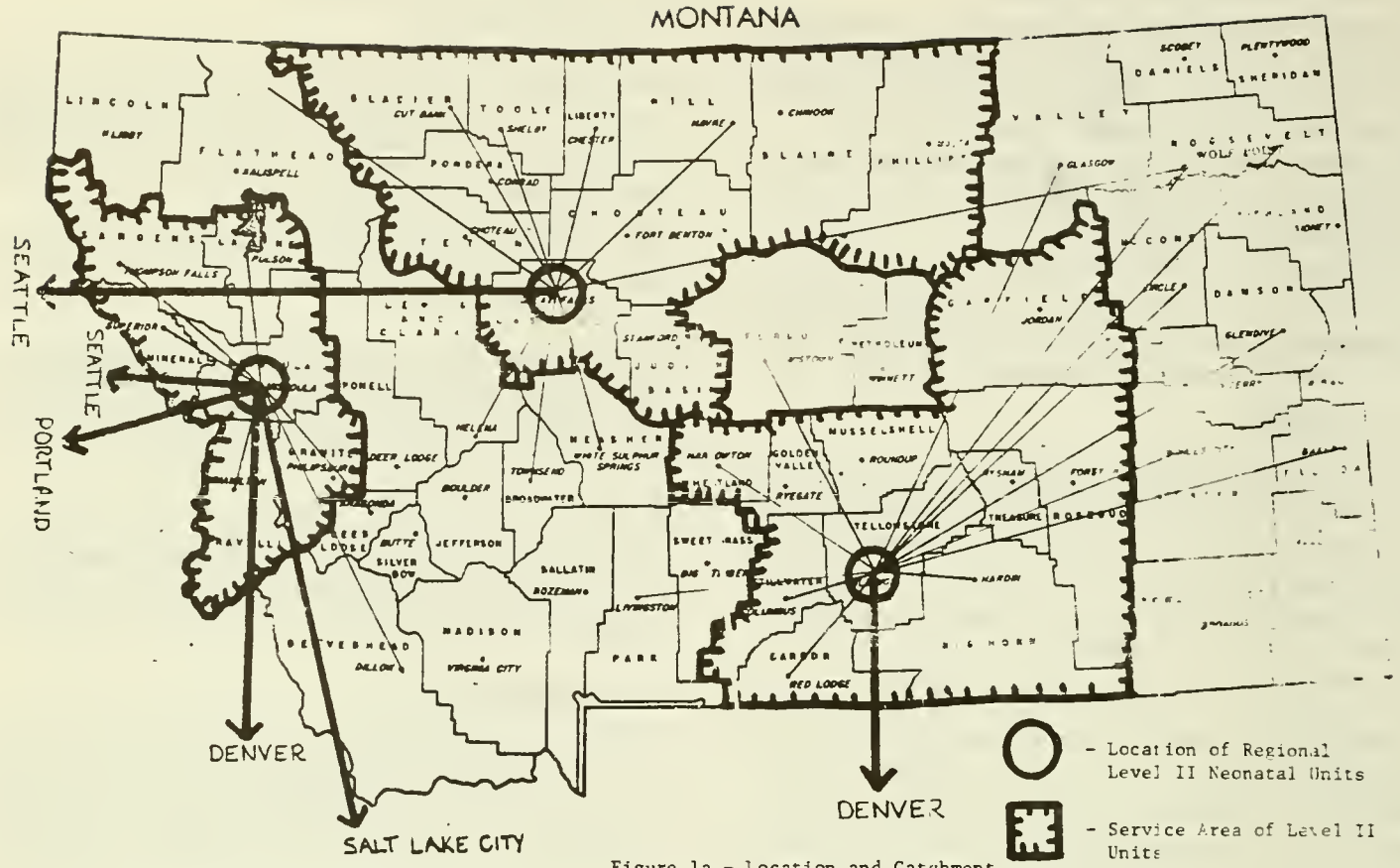
Special facilities, equipment and staff are required to treat the seriously ill infant. To provide adequate staffing (24 hours a day), maintain staff proficiency and justify the use of the expensive, specialized equipment involved, a fairly large case load is needed.

3.0 FUTURE RESOURCE REQUIREMENTS

3.1 AVAILABILITY

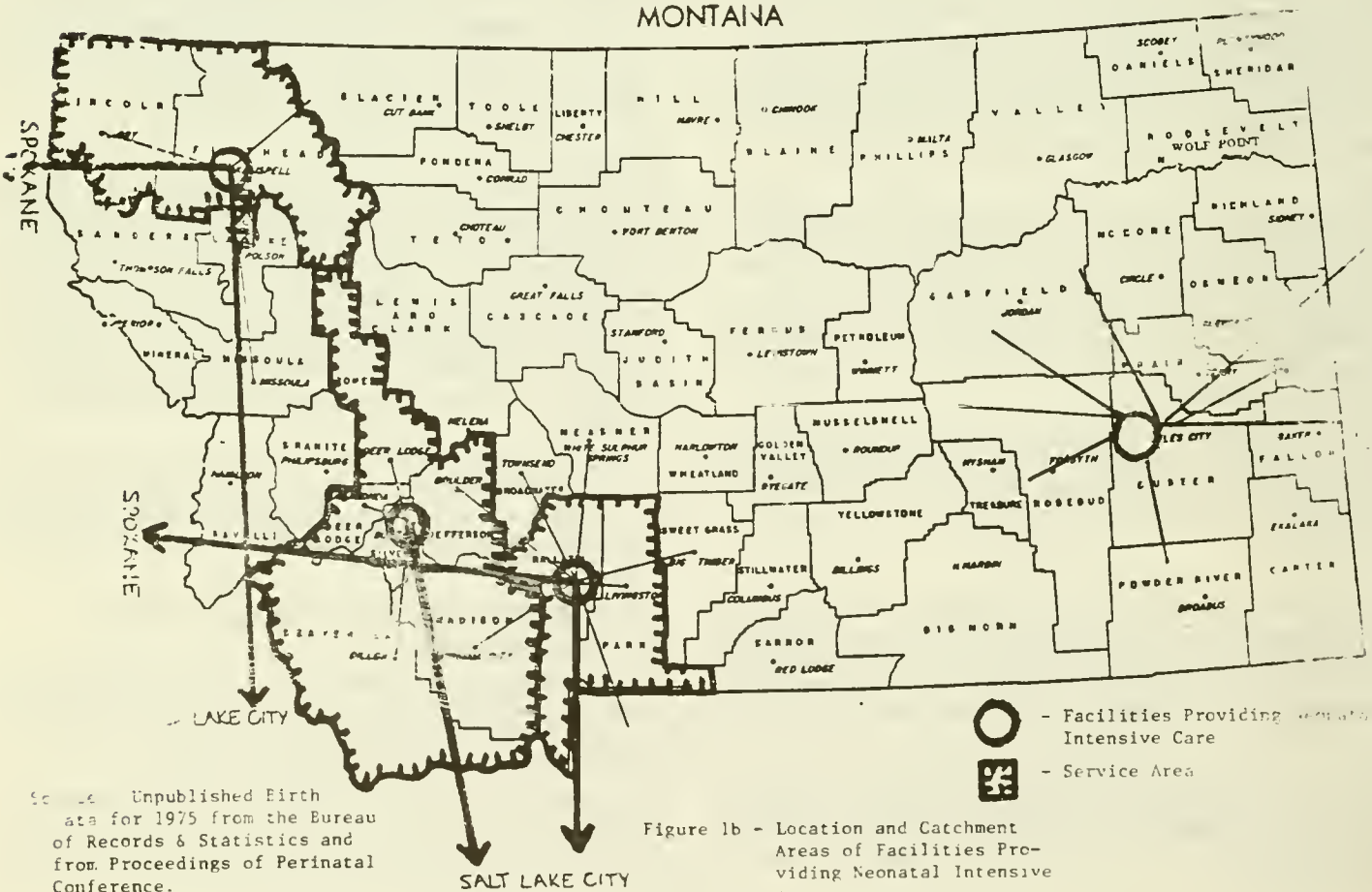
In the analysis for Future Resources for Montana, the model developed and published by Dr. Paul R. Swyer, Chief, Division of Perinatal Medicine, Hospital for Sick Children, Toronto, appears to reflect the latest thinking.

The Neonatal Intensive Care Unit of the Hospital for Sick Children, Toronto, admitted each year approximately 2.2 percent (1300) from a region having 60,000 live births in 1976 and 1977. McMaster University Medical Center N.I.C.U. (Dr.



Source: Unpublished Birth Data for 1975 from the Bureau of Records & Statistics and from proceedings of Perinatal Conference.

Figure 1a - Location and Catchment Areas of Facilities Providing Neonatal Intensive Care in Montana.



Source: Unpublished Birth Data for 1975 from the Bureau of Records & Statistics and from Proceedings of Perinatal Conference.

Figure 1b - Location and Catchment Areas of Facilities Providing Neonatal Intensive Care in Montana.

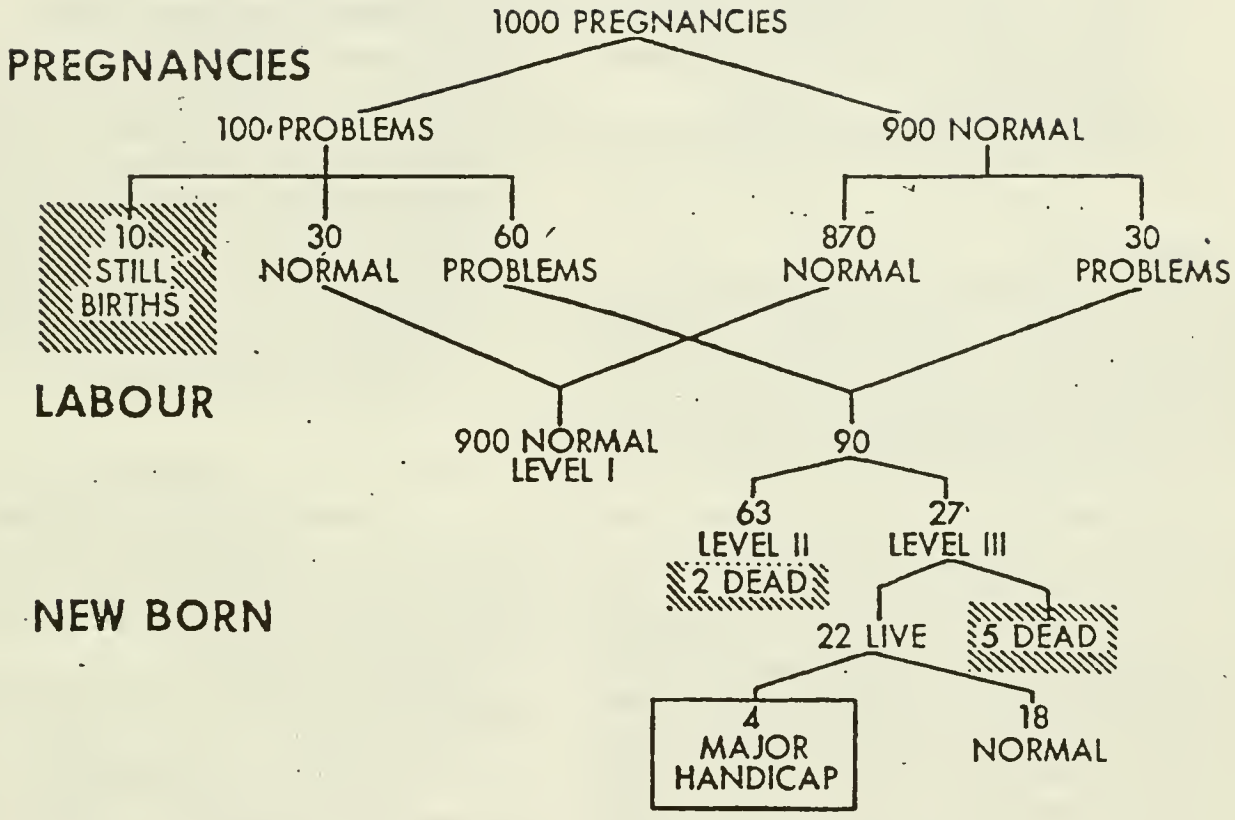

PREGNANCIES
1000 PREGNANCIES
100 PROBLEMS
900 NORMAL
10 STILL BIRTHS
30 NORMAL
60 PROBLEMS
870 NORMAL
30 PROBLEMS
LABOUR
900 NORMAL LEVEL I
90
63 LEVEL II
2 DEAD
27 LEVEL III
NEW BORN
22 LIVE
5 DEAD
4 MAJOR HANDICAP
18 NORMAL

FIGURE 2

Jack Sinclair) admitted 530 (2.65 percent) from 20,000 regional births. There are 220 neonatal deaths annually in the Hospital for Sick Children, Toronto while the region recorded 510 deaths in 1976 (Provincial neonatal mortality rate ◄ 28 days, is 8.5/1000 l.b.). Thus a substantial number of deaths of newborns still occur outside the tertiary care unit. While many of these are undoubtedly due to lethal anomalies or fulminating neonatal disease for which neonatal transfer would be inappropriate, there would appear to be potential for increased neonatal tertiary referral, though the extent is uncertain. A figure of 3 percent is a reasonable estimate based on our experience, or 30 tertiary care neonatal problems/1000 l.b.

The chief modifying factors which affect this estimate are

1. Low birth weight incidence.
2. Incidence of Teen-age pregnancy.
3. Definition of the capability of level II units in the region will affect the partition of total problem newborns between levels III and II. This can only be determined at the local level using generally accepted guidelines.
4. Variations in birth rate.
5. Improvements in obstetric/neonatal management reducing morbidity.

Duration of Stay

Experience at the Hospital for Sick Children, Toronto is 10 days at level III and 7 days at level II. The duration at McMaster University Medical Center (Dr. J. Sinclair) and Emory University (Dr. A. Brann) is similar. The manpower subcommittee of the Fetus and Newborn Committee are using 10 days at each level based on pooled experience of about 30 Neonatologists at a previous meeting. Definition of capability of each level is the deciding factor.

While it is possible to make a reasonably close estimate of the number of newborns requiring level III care, it is less easy to make this estimate for level II because level II institutions are less defined than level III and statistical data is difficult to obtain. One technique employed is to project from the total number of risk pregnancies on the assumption that a risk pregnancy produced a problem newborn. This is obviously not the case, neither do normal pregnancies always result in normal newborns. Estimates (Fig. 2) of proportions of risk pregnancies vary widely depending on criteria but a conservative estimate is 10 percent, or 100/1,000 pregnancies which deliver. Eliminating the approximately 10/1,000 stillbirths* from statistical consideration for the sake of simplicity one is left with 100 risk newborns of whom only 70 will declare as problems, 49 (7/10) to level II, 9(3/10) to level III. Level III problems then total 30/1,000 live births as in our original estimate and the remainder at level II (70/1.000 l.b.). totaling together 100 problem newborns/1,000 live births. A further 100 newborns/1,000 live births may need close observation for up to 24 hours after birth at a level II intensity.

*Ontario stillbirth rate for 1976 is 7.8.

The capability of level I units to service convalescent and growing infants from level II will also influence the bed requirement at level II. If this capability is minimal the requirement may increase substantially at level II. Some flexibility is required and can usually be built into the system. Those level III units are usually situated in Health Sciences Centers which house all three levels of care. Level II units should be in major community hospitals and will contain both level II and I. Free standing level I type units should become increasingly rare in major centers of population but will need to be retained within a Regional network for rural and geographically remote areas.

Finally, all figures need to be adjusted upwards to take account of an occupancy factor. For Units of this nature an 85 percent occupancy rate is thought to be reasonable. Thus the number of beds estimated to be needed should be multiplied by 1.2. The overall figure of 2.6/1,000 live births becomes 3.1/1,000 live births (Table 2).

3.2 ACCESSIBILITY

Table 3 depicts the travel distance between units in Montana and indicates Level III out of state referral patterns.

3.3 COST

It is anticipated that the cost for future care will increase proportionally with the cost of equipment, supplies, and professional time or with the projected rate of inflation.

4.0 GENERAL ANALYSIS

4.1 ALTERNATIVES AND ISSUES

The schematic (Figure 2) and Tabular derivation (Table 2) illustrate current thinking. The combined estimate of 2.6 special care beds/1000 live births at level II and III is somewhat lower than the 4/1000 live births regulated in the National Guidelines. The difference arises from a somewhat lower incidence of risk and the assumption of a definite capability for "convalescent and growing care" at level I in our estimate. It also ignores an occupancy factor which at 85 percent would bring the estimate to 3.1/1000. The Guidelines figure is noted to be a maximum however which should not be exceeded. The cautions regarding "modifying factors" are reiterated, and would likely be a significant inflating factor in some jurisdictions in the U.S.

TABLE 2

TABULAR DERIVATION OF NEWBORN BED REQUIREMENTS

For every 1000 pregnancies there are 10 stillbirths. We will omit the stillbirths and for simplicity of calculation will start with 1000 live births. This is *not* the same as 1000 pregnancies.

Ten percent of newborns are "at risk." Therefore for 1000 newborns there are:

900 Non-risk	200/1000 need-24 hr. special obser
100 Risk	vation including the 100 "risk"

From 900 non-risk newborns there are;

870 normals
30 problem newborns of whom
21 to Level II (7/10)
9 to Level III (3/10)

From 100 risk newborns there are:

30 normals
70 problem newborns of whom
49 to Level II (7/10)
21 to Level III (3/10)

Totals:	Normal	900	
	Level II	70	(21 + 49)
	Level III	30	(9 + 21)
		1000	live births

a) Formula for Number of **Level III Newborn beds:**
Assume a 10-day stay at Level III
Therefore 1 bed looks after 365/10 = 36.5 Newborns per year
If need is 1 bed for 36.5 newborns it is 30/36.5 = 0 8 beds for 30 level III newborns per 1,000 live births.

b) Formula for Number of **Level II Newborn beds;**
Assume a 7-day stay at Level II
Therefore 1 bed looks after 365/7 = 52 Newborns per year
If need is 1 bed for 52 newborns, it is 70/52 = 1.3 beds for 70 Level II newborns.

However, there will be five deaths for every Level III cohort, leaving 25 for convalescence at Level II. i.e. an additional 25/52 = 0.5 beds would be needed for Level II newborns.

Therefore, need is 1.3 + 0.5 = 1.8 beds for medium risk newborns per 1,000 live births in the catchment area for intermediate care.

N.B. This assumes a distinct capability at Level I for accepting a number of convalescents from Level II. In the absence of this, Level II capability may need doubling.

Summary:
For every 1000 live births per year:
0.8 Level III beds
1.8 Level II beds are needed.
2.6 x occupancy factor (1.2) for 85 percent equates to 3.1 beds needed for every 1,000 live births per year

	Distance to Other Level II Centers (Miles)			Distance to Level II Centers[1] (miles)			Primary Level III Referral Center	Size of Service-Area (sq. miles)
	Billings	Great Falls	Missoula	Butte	Kalispell	Bozeman		
Billings	-	219	339	225	447	143	Denver	25,549
Great Falls	219	-	168	153	228	184	Seattle	31,180
Missoula	339	219	-	119	115	201	Salt Lake City	12,252

[1]Butte primarily refers to Salt Lake City; Kalispell to Spokane; and Bozeman to Salt Lake City.

TABLE 3
Distance Between Units in
Montana Offering Neonatal Intensive Care Services

5.0 EXCEPTIONS TO NATIONAL GUIDELINES

The National Guidelines have identified and established the following three criteria for Neonatal Intensive Care Units:

1) Neonatal services should be planned on a regional basis with linkages to Obstetrical Services.
2) The total number of neonatal intensive care beds should not exceed four per 1,000 live births per year in a defined service area.
3) A single neonatal intensive care unit (Level II or III should contain a minimum of 15 beds.

The first two criteria have been met in this plan component. In this component, neonatal services are being planned on a regional basis. Although a different methodology was used, the total number of beds needed in 1985 as estimated in this plan is approximately equal to 3.1 per 1,000 live births. Table 4 compares the number of NICU beds in each catchment area vs. the number based on four beds per 1,000 live births. It appears that the percentage of low weight babies born in Montana is not significantly different than the national average. In 1976 and 1977, 6.7 and 6.3 percent, respectively, of the babies born in Montana weighed under 5 pounds 8 ounces. The corresponding national averages were 7.3 and 7.1 percent.

The criterion for which an exception must be made for Montana is the requirement that each unit must have at least 15 beds. This exception is justified in terms of the geographical area being served.

Assuming that each NICU unit should maintain a 75 percent occupancy rate, this criterion would then require each unit to have at least 2,812 births each year. It is predicted that no facility in Montana will have this many births in its service area in 1985.

The distances between communities having Level II units is shown in Table 3. These units are approximately 200 miles apart and their respective service areas cover between 12 and 30 thousand square miles.

NICU Unit	Estimated Number Of Births In Catchment Area (1985)	4.0 NICU Beds/1,000 Live Births	3.1 NICU Beds/1,000 Live Births	NICU Beds Presently In Service
Billings	2,680	10.72	8.3	10
Great Falls	2,693	10.77	8.3	10
Missoula	2,215	8.86	6.7	10
Butte	1,495	5.98	4.6	4
Kalispell	1,190	4.76	3.7	3
Bozeman	956	3.82	3.0	—
State	14,014	56.06	35	37

TABLE 4 -Comparison Between
National Guidelines NICU Criterion
(4.0 beds/1,000 live births)
And 3.1 beds/1,000 live births,
As Suggested in the HSP

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APPENDIX 1

RECOMMENDED REVIEW CRITERIA: NEONATAL INTENSIVE CARE UNITS

1. Any regionalized system (opposed to a fragmented system) will incur costs for consultation, transportation, special equipment, personnel education, and physician directors. This increase in costs should be compared to savings over the expense of services offered through a fragmented system.
2. Due to the nature of neonatal intensive care, level II personnel and equipment must be available on a 24-hour, seven day a week basis.
3. Established referral patterns from level I to level II help provide efficient and appropriate transfer of the neonate in need of intensive care services.
4. The physician at the initial level of care primarily responsible for initiating requests for consultation must have the opportunity to participate in the mother's care as she and/or her infant move through the regional system.
5. Lines of communication between hospitals and physicians must be established and maintained so that consultation in both directions is readily available.
6. Education of the physician and nurses in the level I hospitals is essential to identfy high-risk mothers and possible neonatal problems.
7. Provision must be made to ensure the expeditious return of mothers and/or infants to the most convenient facility qualified to provide the level of care needed.
8. Level II facilities are responsible for development of a transport system with the cooperation of the level I facilities in its area. This will assure optimal care of the sick neonate during the stabilization and transport process. The transport should be done by an experienced team specially trained for newborn care. This team should be under the direct supervision of the level II center.
9. Level II centers are differentiated from Level I centers primarily by their ability to provide more than emergency care for the sick neonate.

3.4
RADIATION THERAPY

GOALS:

A full range of Radiation Therapy including curative and palliative radiation therapy services should be available to all Montanans for the purpose of comprehensive cancer management.

OBJECTIVES:

1. Radiation therapy facilities should be developed into a network of cancer care in Montana. The first, a comprehensive cancer management facility, should be able to offer a full range of curative and palliative radiation therapy services. Each of these facilities should:
   — Serve a population of at least 200,000 persons in a radius of 150 miles;
   — Treat at least 300 new cancer patients a year; and
   — Provide at least 6,000 treatments (patient visits) a year.
2. A cooperative (limited) cancer management facility should primarily provide palliative treatments for local patients. It should:
   — Serve a population of at least 67,000 people in a radius of 100 miles;
   — Treat at least 100 new cancer patients a year; and
   — Provide at least 1,000 treatments (patient visits) a year.
3. Radiation therapy facilities should not be duplicated in any community in Montana.

LONG-RANGE ACTIONS

1. A cooperative (limited) cancer management facility should be developed in Kalispell by 1982, if it can be shown to be economically feasible.
2. By 1983, all cancer programs in Montana should foster the development of patient self-help groups.
3. By 1982 all facilities providing radiation therapy will participate in a statewide cancer registry to assure continuity of care.

1.0 BACKGROUND

1.1 SERVICE DEFINITION

Radiation oncology is a medical specialty in which patients with cancer (and other tumors and neoplasms) are treated with ionizing radiation. The ionizing radiation penetrates the cells and deposits energy within them. This form of energy, when it is sufficiently intense, kills cells by inhibiting their division.

Radiation oncology is one of three medical specialties involved in cancer treatment. All three oncology specialties (Radiation Oncology, Surgical Oncology and Medical Oncology) are involved in the evaluation, treatment and follow-up care of the cancer patient and must be considered when developing a comprehensive plan for radiation oncology facilities. Multidisciplinary consultation and treatment is important in the delivery of optimum care to the cancer patient.

The goal of radiation therapy is to cure patients with cancer, and if that is not possible, to improve the quality of life of patients who are not curable by relieving distressing symptoms such as pain or bleeding. Whether curative or palliative, radiation therapy is used alone or in combination with surgery and/or chemotherapy in about 45-50% of all cancer patients at some time during the course of their disease.[1]

Radiation therapy can be delivered in several modes. It can be applied externally or internally with a high or low energy source. The following is a list of the type of equipment used for radiation therapy.[2]

A. Superficial X-ray Therapy: Produced by a conventional X-ray machine which generates up to 150 kilovolts or 150 KV, (1 kilovolt equals 1,000 volts) and is utilized for radiation of superficial lesions such as skin cancer.

B. Orthovoltage X-ray Therapy: Also known as DEEP THERAPY, is produced electro-magnetically and generates from 150 to 800 KV (kilovolts). X-rays produced by orthovoltage equipment have deeper penetration (greater DEPTH DOSE) into human tissues than the superficial therapy equipment described above.

C. Megavoltage (Supervoltage) Therapy: High energy radiation in excess of 1,000,000 volts (MEGAVOLTS or MeV) which can be produced by several means. Radiation emitted by high energy sources in the megavolt range offers advantages over the lower energy radiation in that the skin of the patient is affected to a lesser extent by the radiation beam, a greater depth dose may be attained, the scatter of the therapeutic beam is diminished, this absorption of the beam by the patient's bones is reduced.

1) Particle Accelerators — Generate a high energy electron beam which itself may be used for therapeutic purposes. Usually, however, the electron beam is used to bombard a metal target within the device which then emits high-energy X-rays. The following megavoltage particle accelerators are in common use as radiation:
   a) VAN DE GRAFF GENERATOR
   b) LINEAR ACCELERATOR
   c) BETATRON

Linacs are available in 3 energy levels: Low, or 4-8 MeV; medium, 10-20 MeV, and high or 20 + MeV. Medium and high energy equipment usually has electron beam capabilities.

2) Isotopes Sources
   a) RADIOACTIVE COBALT (Co^{60}), one of the most commonly used sources of megavoltage radiation, emits Gamma rays, equivalent in energy to 3 MeV X-rays.

Radiation Applied Internally

RADIUM, RADON, and artifically-created radioactive ISOTOPES may be used for therapeutic purposes by implanting the radioactive material in the patient's body. The two types of implantation therapy are:

a) Interstitial Therapy: Treatment by placement of radioactive isotopes enclosed in a suitable container which is inserted into and through layers of tissue.

b) Intracavitary Therapy: Treatment by temporary placement of a radioactive isotope enclosed in a suitable container which is inserted into a natural orifice or cavity of the body.

1.2 SERVICES AND SETTINGS

Radiation therapy is usually given in an ambulatory setting. Since approximately 10-25% of patients who require such treatments are in-patients, radiation therapy facilities should be located within a hospital or closely associated with one.

1.3 TRENDS

Nationwide, there is now a ratio of about 1 linac to four cobalt-60 units. There is a continuing trend to replace cobalt-60 units with linacs because of the technical advantages and greater versatility of medium range and high range linacs.

Radiation therapy is one of three basic approaches or modalities currently used in cancer treatment, two others are surgery and chemotherapy (drugs). Depending upon the type of disease and its extent of development when diagnosed, these three approaches are used singly, sequentially, or in combination. For this reason, and because these three approaches to cancer treatment involve different medical specialities, the American College of Surgeons has recommended that local cancer treatment programs combine all three approaches in a cooperative multidisciplinary effort. Some evidence of this basic approach is becoming evident in Montana.

The purpose of these guidelines is to foster a network of cancer care within Montana. Special emphasis will be given to the future placement of radiation therapy units. Because of their costs, the purchase of units and their associated equipment will almost always require prior review and approval.

2.0 CURRENT SITUATION

In Montana, no reliable local estimates of cancer incidence are currently available. The American Cancer Society estimates that 2,100 new cases of cancer were diagnosed in the state in 1976.[1] This statistic is derived from the third annual cancer survey conducted in 1971. Using the same data base, the National Cancer Institute estimates that the annual national rate for all newly diagnosed cases is 3.0 per 1,000 population.[2]

It appears that mortality due to cancer in Montana is somewhat less than in the nation as a whole. For example, the crude 1975 mortality rate from cancer was 147.7 in Montana and 171.1 in the nation. Nevertheless, cancer is and has been the second leading cause of death in Montana for the past several years.[3]

2.1 AVAILABILITY

Figure 1 shows the location, theoretical catchment areas, and major referral support locations of the radiation therapy facilities in Montana. The intent of this figure is to give the reader a general impression of the areas served by radiation therapy facilities in Montana. It is not intended to make a radiation therapy facility responsible for specific counties, and only those counties. In reality, catchment areas expand and contract continuously and often overlap.

Table I identifies the specific institutions, lists the types of radiation therapy equipment currently available and reports the 1978-79 utilization of these units. At the present time, two regional cancer programs have been developed in Montana, which apparently serve most of the cancer patients in their catchment area. These two programs are:

— Columbus Hospital in Great Falls
— Northern Rocky Mountain Cancer Treatment Center in Billings

These two programs both have linear accelerators and cobalt units to provide a full range of treatment capability. Both have two board certified radiation therapists and a physicist on staff. Both programs appear to be satisfying the national guidelines of serving populations of at least 150,000 people and performing at least 6,000 treatments a year.

Missoula has recently recruited a radiation therapist and a group of physicians have ordered a linear accelerator. St. Patrick Hospital in Missoula currently has a Cobalt-60 unit.

There are three other facilities in Montana which have Cobalt-60 units and provide limited services. These are:

— St. James Community Hospital (Butte)
— Bozeman Deaconess Hospital (Bozeman)
— St. Peter's Hospital (Helena)

At the present time, these units are primarily used for palliation and skin cancer treatments. Each of these units is operated under the direction of general radiologists. Each of these facilities is currently doing about 1,000 procedures a year.

The Central Montana Hospital in Lewistown has only an orthovoltage capability which is primarily used for the treatment of skin cancers. It too is operated under the direction of a general radiologist. Only about 100 procedures were performed on it in 1978.

2.2 ACCESSIBILITY

Table 2 shows the estimated travel time for cancer patients living in selected communities and traveling to the nearest full service cancer treatment center. This table indicates that travel times range from three to over five hours. Many cancer patients in Montana currently go to cancer centers outside the state (primarily Spokane, Washington; Seattle, Washington; Salt Lake City, Utah; and Denver, Colorado). Air travel time to these cities is often longer than the times indicated in Table 2.

2.3 COST

In addition, it appears that if the national standards were followed, without exception, the overall (system) costs of cancer treatment would actually be increased. Table 2 shows the estimated travel expenses to be incurred by each patient living in the communities being recommended for exceptions. It shows that travel expenses incurred by each patient would be between $600 and $900. Assuming that the average charge for a treatment is $50 and each patient needs 20 visits, the medical cost of treating a patient is about $1,000. This means that a cooperative facility could charge as much as 60 percent more per treatment and still save the patient money. All of the four proposed cooperative cancer facilities already have Cobalt 60 units and one would not expect the unit costs to be this high.

In addition, travel costs are not reimbursed by third party payors. The patient may be denied access to medical care because of fiscal constraints.

3.0 FUTURE RESOURCE REQUIREMENTS

3.1 AVAILABILITY

Because of the vast distances to be traveled in Montana, it has been suggested that two types of radiation therapy facilities be encouraged within Montana. These are needed to provide reasonable access to quality cancer care without the patients and their families spending inappropriate amounts on traveling and temporary living arrangements. These would roughly correspond to two of the three types of facilities espoused in the 1968 report, *A Prospect for Radiation Therapy in the United States*[4]:

— Correlated Cancer Management Facilities, and
— Cooperating Cancer Management Facilities.

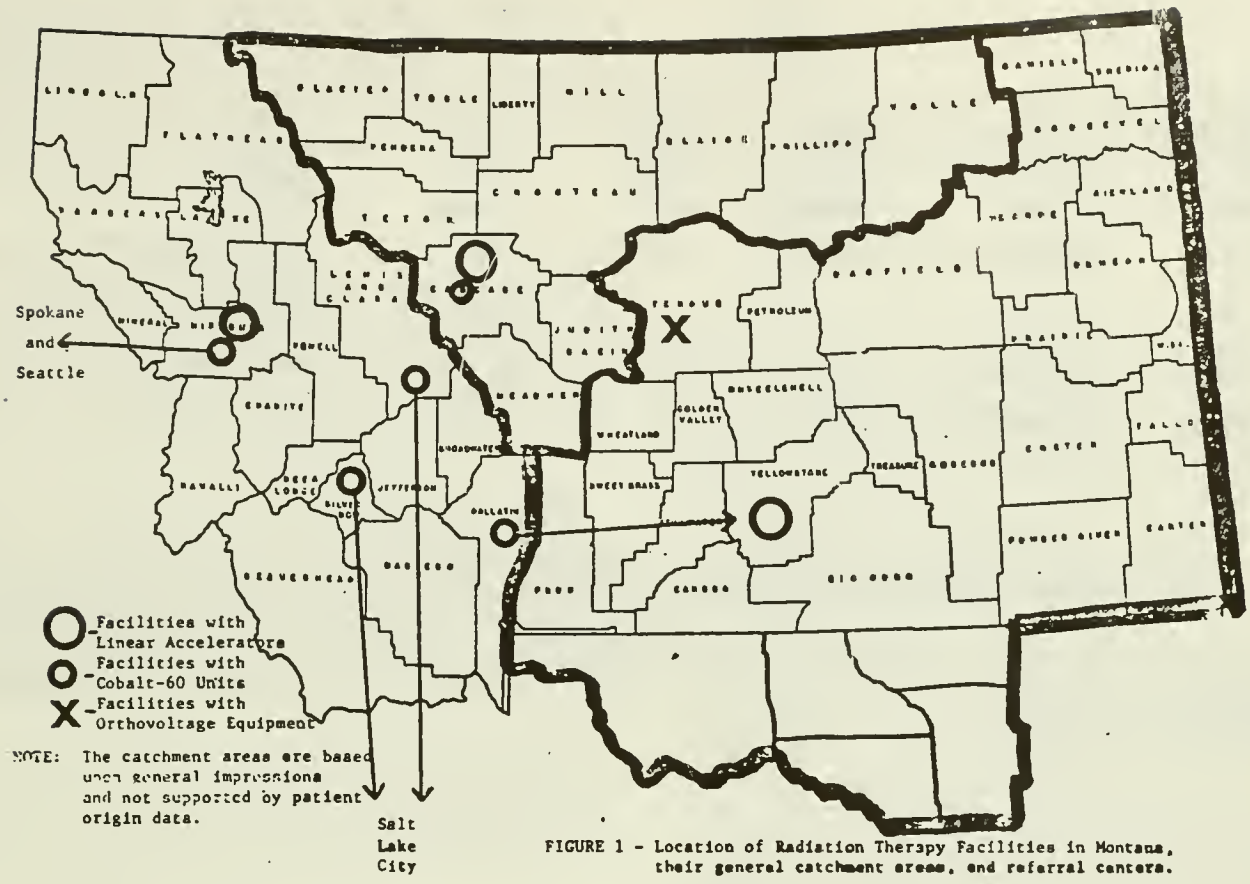


FIGURE 1 - Location of Radiation Therapy Facilities in Montana, their general catchment areas, and referral centers.

FACILITY	RADIATION THERAPY EQUIPMENT: MEGA-VOLTAGE	SUPER-VOLTAGE	ORTHO-VOLTAGE	SUPER-FICIAL	NUMBER OF RADIATION THERAPY (COBALT AND LINEAR ACCELERATOR) PROCEDURES PERFORMED (1978-1979): INPATIENT '78	INPATIENT '79	OUTPATIENT '78	OUTPATIENT '79	TOTAL '78	TOTAL '79
NORTHWESTERN										
St. Patrick (Missoula)	-	CO-60	-	X	374	617	2,233	3,602	2,607	4,219
NORTH CENTRAL										
Columbus (Great Falls)	20 MEV[1]	CO-60	X	X	1,193	1,450	5,876	6,805	7,069	8,255
SOUTHWESTERN										
St. James Community (Butte)	-	CO-60	-	-	229	371	989	1,408	1,218	1,779
Bozeman Deaconess	-	CO-60	X	X	-		-		435	550
St. Peter's (Helena)	-	CO-60	-	X	0	135	1,211	453	1,211	588
SOUTH CENTRAL										
Billings Deaconess	-	CO-60[2]	-	-	0	0	5	0	5[2]	0
Northern Rockies Regional Cancer Treatment Center (Billings)	12 MEV	CO-60	-	X	-		7,765	7,436	7,765	7,436

TABLE 1 - Utilization of Radiation Therapy Equipment in Montana (1978-1979)

1) Linear Accelerator became operational March 28, 1978, in a new facility. The new hospital was officially opened May 12, 1978. Of every 100 patients currently seen, about 70 are treated on the Linear Accelerator and 30 on the Cobalt-60 unit.

2) Service discontinued - May 31, 1978.

Source: Unpublished data from the 1979 Hospital and Related Facilities Annual Report, Department of Health and Environmental Sciences, State of Montana and from individual facilities.

Potential Cooperative Cancer Facility	Nearest Cancer Program	Estimated 1976 County Population	Distance to Nearest Cancer Program (miles)	Travel Time[1] (hours)	Estimated Travel Costs per patient[2]
Kalispell	Missoula	45,400	115	4.18	$679.10-$782.00
Butte	Missoula	41,100	124	4.50	$682.16-$843.20
Helena	Great Falls	38,000	89	3.24	$605.20-$670.26
Bozeman	Billings	37,400	143	5.20	$688.62-$972.40

1) Estimated at 55 miles/hour.
2) It is assumed that each patient must have 20 treatments. Two estimates of travel expenses are used. First, it is assumed that the patient returns home after each treatment (cost = $0.17/mile). Second, it is assumed that the patient drives to the referral center, stays there until the treatments are completed (cost = $32.00 per day).

TABLE 2

Travel Time and Travel Expenses to be Incurred if No Cooperative Cancer Facilities Were Established in Montana.

Table 3

Desired Characteristics of the Two Types of Cancer Treatment Facilities

Characteristic	Correlated Cancer Management Facility (Comprehensive Care)	Cooperating Cancer Management Facility (Limited Care)
Primary Equipment	Linear Accelerator, Cobalt-60 Unit and Orthovoltage Machine	Cobalt-60 Unit and/or Orthovoltage Units
Support Equipment	Simulator	
Staffing	One or two full time Radiation Therapists, and one full time Radiation Physicist	At least one full time General Radiologist and Consultant Physicist
Related Medical Specialists available full time	Medical Oncology Surgery Pathology	Internal Medicine with interest in Oncology Surgery Pathology
Patient Load	300 new cases and 6,000 treatments (patient visits) per year	100 new cases and 1,000 treatments (patient visits) per year
Required Population Base[1]	200,000	66,667

1) Estimated on the basis that the incidence of cancer is 3.0 new cancer patients per year per 1,000 population and about 50 percent of all new cancer patients will require radiation therapy.

SOURCE: **A Prospectus for Radiation Therapy in the United States**, October 24, 1968.

The general characteristics of each of these facilities are depicted in Table 3. It is envisioned that the correlated facility would be a comprehensive cancer program offering both curative and palliative services. In contrast, the cooperative facility would primarily offer palliative care and treatment of superficial tumors. The services of a cooperating facility should be coordinated with a nearby correlated facility or major cancer center.

3.2 ACCESSIBILITY

The national standards recognize that distance and travel time justify less stringent criteria for radiation therapy units in some communities. Radiation therapy is different from other tertiary services in that many repeat visits are needed to provide full treatment. It has been estimated that a full regimen of treatment requires an average of 20 visits. These treatments are given over an extended period of time and many are provided on an outpatient basis.

If the national standards are followed, a sizable proportion of cancer patients in Montana will be denied reasonable access to medical care. Each of the cooperative cancer facilities being suggested in the Montana HSP (Kalispell, Butte, Bozeman and Helena) are major population centers in Montana and are at least 90 miles from a city with a radiation therapy capability (see Figure 1). Approximately 21.5 percent of Montana's population lives in these four communities.

A patient traveling this distance at 55 miles per hour, spends between three and five hours on the road for each treatment. In some cases, the patient has a reaction to the treatment (nausea is a common aftereffect), which makes the trip home extremely difficult. In effect, following the national guidelines would deny treatment for a substantial portion of Montana residents.

The estimated need for the two types of radiation therapy facilities in the various communities in Montana in 1985 is shown in Table 4.

The need for these facilities was estimated by the following procedures:

1. To determine the maximum number of correlated cancer management facilities (i.e., those facilities with linear accelerators) which could be supported, the state's 1985 projected population was divided by 200,000. Since the state's 1985 population is expected to be 853,000, this means that, at most, four such facilities could be justified.
2. The locations and capacities of existing radiation therapy facilities were examined and the population within a 150 mile radius was considered. As a result, the following communities were identified as potential sites for linear accelerators:
   — Billings
   — Great Falls
   — Missoula, and
   — Butte, Helena, or Bozeman

In the last case, it is felt that a linear accelerator can be justified only in one of these communities and only if the other two would cease delivering radiation therapy services.

Of the other three, only Missoula has not yet developed this capability.

3. Potential locations for cooperating cancer management facilities were investigated using the criterion of a population base of 67,000 and a service area radius of 100 miles. The following communities appear to satisfy this criterion:
   — Kalispell
   — Butte
   — Bozeman
   — Helena

In addition, the following communities satisfy the distance (accessibility) criteria but apparently do not have the population base to justify a cooperative cancer program:

   — Havre
   — Lewistown
   — Glasgow
   — Miles City, Glendive, or Sidney

3.3 COSTS

Reference is made to Table 2 which outlines patient costs for travel time and expenses if no cooperative care facility were established in Montana. With the advent of such centers, cost of treatment and follow-up in Montana should be reduced overall, provide a cost savings to the patient and contribute to the proficiency of treatment center operation.

4.0 GENERAL ANALYSIS

4.1 ALTERNATIVES AND ISSUES

Within the past fifteen years increasing attention has been focused on the necessity of multidisciplinary management before a decision on treatment is made. The primary physician still should play a key role in cancer care. Besides being in a postion to initiate multidisciplinary involvement at the earliest time, the primary physician is crucial for continuity of care. It is the primary care physician who, after treatment, can most readily over-see periodic follow-up examinations throughout the patient's life. These are of paramount importance for early detection of any recurrence of the previously treated cancer and for the early diagnosis of a possible new primary cancer at another site.

These factors make it mandatory that all physicians and institutions assuming the responsibility for care of patients with cancer provide an organized system for long-term surveillance of these cancer patients. Such a system will not only lead to improved patient care but will contribute to valid record of end results for evaluation of treatment. A cancer registry that is properly organized and in continuous operation is the only known method to fulfill these requirements.

5.0 EXCEPTIONS TO NATIONAL GUIDELINES

The stated national standards for Radiation Therapy facilities are:

1. Each megavoltage (Cobalt 60 or Linear Accelerator) unit should serve a population of at least 150,000 people and at least 300 cancer cases annually within three years after initiation.
2. No additional megavoltage units should be opened unless each existing megavoltage unit in the health service area is performing at least 6,000 treatments annually.

This plan suggests the establishment and maintenance of cooperative cancer management facilities (for palliative treatment of cancers) and is at variance with these national standards. Justification for exception in Montana is based upon two factors, access (travel time and distances) and costs.

Exceptions to these guidelines are based on two factors: Accessibility as described in Section 3.2 and cost factors as described in Section 2.3.

Table 4

Estimated Number of New Cancer Patients and Therapy Treatments in Proposed Radiation Therapy Facilities in Montana in 1985.

Type of Facility & Location	Estimated 1985 Population	Estimated New Cancer Treatments	Estimated R.T. Treatments Per Year
Correlated Cancer Management Facilities			
- Billings	280,834	843	12,637
- Great Falls	183,809	551	8,271
- Missoula	261,259	784	11,757
- Butte, Helena or Bozeman	205,798[1]	617	9,255
Cooperating Cancer Management Facilities			
- Kalispell	92,867[2]	278	2,085
- Butte	78,049[3]	234	1,756
- Bozeman	64,204[4]	193	1,445
- Helena	58,528[5]	176	1,317
Other Possible Sites-Limited Radiation Therapy			
- Havre	29,439[6]	88	662
- Lewistown	14,295[7]	43	322
- Glasgow	36,497[8]	109	821
- Miles City, Glendive or Sidney	41,717[9]	125	939

1) It is assumed that if a Linear Accelerator were placed in one of these cities and the other two Radiation Therapy Units were phased out, the catchment area would be roughly the Southwestern Subarea. In this case, the potential catchment areas for Missoula, Billings and Great Falls would be reduced.
2) Kalispell's potential catchment area is assumed to be Flathead, Lake and Lincoln Counties.
3) Butte's catchment area is assumed to be Silver Bow, Deer Lodge, Powell, and Beaverhead Counties.
4) Bozeman's catchment area is assumed to be Gallatin, Park and Madison Counties.
5) Helena's catchment area is assumed to be Lewis & Clark, Broadwater and Jefferson Counties.
6) Havre's potential catchment area is assumed to be Hill, Blaine and Liberty Counties.
7) Lewistown's potential catchment area is assumed to be Fergus and Petroleum Counties.
8) Glasgow's potential catchment area is assumed to be Valley, Phillips, Daniels, and Roosevelt Counties.
9) The potential catchment area for any of these three facilities is assumed to be primarily Custer, Prairie, Dawson and Richland Counties.

REFERENCES

1) American Cancer Society *"76 Cancer Facts and Figures"* 1975.
2) Levin, D. L., et al, *Cancer Rates and Risks* U.S. Department of Health, Education and Welfare, Public Health Service, National Institute of Health 2nd Edition 1974, DHEW Publication No. (NIH) 76-691.
3) The Bureau of Records and Statistics, State Department of Health and Environmental Sciences, *Montana Vital Statistics,* 1975.
4) Subcommittee on Regional Medical Programs of Committee for Radiation Therapy Studies, *A Prospect for Radiation Therapy in the United States* final report, October, 1968.

APPENDIX 1

RECOMMENDED REVIEW CRITERIA: RADIATION THERAPY UNITS

1. The revenue generated by a new cancer program with a radiation therapy capability should be able to support its own direct operating costs, depreciation costs and its share of overhead. The break-even point should be reached at the end of the fourth completed fiscal year after initial operation, given prevailing prices.
2. Facilities proposing to purchase high and medium voltage radiation therapy equipment should satisfy the standards stated in the MHSA goal statement.
3. Institutions with radiation therapy units should encourage their staffs to take a multidisciplinary approach to cancer care. Specifically, each facility applying for a supervoltage radiation therapy unit should have, or be committed to recruiting, the following medical specialties full time on their staffs:
   — Radiation Therapy
   — Medical Oncology
   — Surgery
   — Pathology
4. To monitor the quality of care being provided, each facility developing a cancer program should set up a tumor registry to follow-up each patient annually.
5. Each facility wishing to purchase either a linear accelerator or Cobalt 60 Unit should make arrangements for appropriate radiation physics support. Specific standards for physics support are outlined in "A Code of Practice for X-Ray Therapy Linear Accelerators."
6. All radiation therapy departments should have appropriate dosimetry support which is monitored in accordance with existing state regulations and laws.
7. Institutions developing either type of cancer program should be encouraged to get their programs approved by the American College of Surgeons.

IV SECONDARY HEALTH SERVICES

CHAPTER 4
SECONDARY HEALTH SERVICES

Secondary care can be viewed as a middle ground both in terms of medical treatment and in frequency of patient utilization. Secondary care services require a greater population base than primary care services to justify their development, since they are utilized less frequently by the general population and usually require substantial capital investment. Even though the services are fewer in number, they will always be found within the health service area.

Individuals requiring this level of care generally have health problems serious or complex enough to require a visit to a specialist and/or a health facility, (for example, a general hospital, nursing home, or community health center).

In this chapter, the following secondary health services are discussed:

— General Hospital Acute Inpatient Services,
— Acute Care Psychiatric Units,
— Diagnostic Imaging,
— Long Term Care Facilities,
— Home Health Care,
— Alcohol & Drug Abuse Services,
— Mental Health Services,
— Comprehensive Rehabilitation Programs
— Intermediate Care Facilities/Mental Retardation (ICF/MR)

Categories of Service	General Hospital Acute Inpatient Services	Acute Care Psychiatric Units	Diagnostic Imaging	ICF/ MR	Long Term Care Facilities	Home Health Care	Alcohol Services	Drug Services	Mental Health Services	Comprehensive Rehabilitation Programs
Community Health Promotion				X			X	X	X	
Prevention & Detection							X	X	X	
Diagnosis & Treatment	X	X	X	X	X	X	X	X	X	X
Habilitation & Rehabilitation				X	X	X	X	X	X	X
Maintenance Services				X	X	X	X	X	X	
Support Services										
Enabling Services										
Settings										
Community				X			X	X	X	
Home						X				X
Mobile			X				X	X	X	
Ambulatory										X
Short-Stay	X	X	X				X	X		
Long Stay				X	X		X	X	X	X
Free Standing Support										X
Addressed by the National Guidelines	Yes	Yes								

1) The National Guidelines define hospital beds to include Psychiatric Beds.

Table 1 - General Categories and Settings of Services

4.1

GENERAL HOSPITAL ACUTE INPATIENT CARE

GOAL:

Acute inpatient hospital services should continue to be developed on the assumption that a hospital bed will be available for a patient 99.9 percent of the time in each institution.

OBJECTIVES:

1. Through 1985, the primary method of reducing excess hospital beds in Montana should continue to be through the review process with emphasis on the voluntary reduction of excess hospital beds. The construction or modernization of unnecessary hospital beds should be disapproved. Hospitals having excessive beds (beyond the number needed in reserve) and wishing to remodel or renovate their facilities should reduce the number of beds being maintained.
2. Through 1985, all hospitals in Montana should provide critical care (ICU/CCU) services even though the provision of these services may not be cost effective.

LONG RANGE ACTIONS:

1. Rural hospitals should consider combination hospital/long-term care facilities/community health centers. The possibility of using swing beds should be investigated with congressional leaders, state legislators, regulatory and licensing agencies, and third-party reimbursement organizations.
2. Hospitals throughout Montana should be encouraged to develop and implement methods of sharing services and forming satellite systems when economically effective.
3. By 1981, a program of continuing education for the hospital staff members providing ICU/CCU services should be ongoing. Backup staff members must also be trained so gaps in service are prevented.

1.0 BACKGROUND

1.1 SERVICE DEFINITION

As one of their major functions, general hospitals provide 24-hour inpatient services for the diagnosis, short-term care, and treatment of patients. Inpatient services range from very generalized medical-surgical procedures to highly specialized and sophisticated services in specially designed units. The range of services delivered by any one hospital depends upon the population and the geographic area being served as well as such factors as transportation access, physician accessibility and specialization, availability of required personnel, utilization of service, and economic feasibility.

The intent of this component is to establish goals and objectives for the future development of inpatient services in Montana. As part of this activity, the local need for short-term (patient stays of generally less than 30 days) hospital beds is estimated. These include medical/surgical, critical (intensive and coronary) care, obstetrical (maternity), and pediatric beds. Acute psychiatric beds are addressed as a separate component of the plan. The bed need estimates are intended to serve as general guidelines for evaluating future hospital construction applications. It is assumed that the individual applications will contain greater justification and more recent and detailed data to support the number of beds being requested.

1.2 SERVICES AND SETTINGS

The services provided in the short-term or acute inpatient setting are diagnostic and treatment in nature with some hospitals providing rehabilitation services. All hospitals provide some level of ambulatory care through the emergency room and/or organized outpatient clinics.

Within hospitals, the different services provided are generally divided among the following areas:

- — *Medical-surgical services* - Beds designed for short-term, adult, medical-surgical patients. These beds include distinct bed complements for rehabilitation.
- — *Intensive care unit services* - Special unit. The medical-surgical unit in which patients are concentrated by reason of serious illness without regard to diagnosis. Special life-saving techniques and equipment are immediately available, and patients are under constant observation by nursing staff specially trained and selected for the care of this type of patient.
- — *Intensive cardiac care unit or coronary care unit* -A special unit within the medical-surgical unit staffed and equipped solely for the intensive care of cardiac patients.
- — *Obstetric-gynecological services* - A special physical area of the hospital planned for the female population of child-bearing age; includes beds for maternity and non-infectious gynecology patients.
- — *Level I obstetrical units* - provide services for uncomplicated maternity cases and those with minor complications. Level I units also can provide emergency services for more complicated cases.
- — *Level II obstetrical units* - provide a full range of maternity services for uncomplicated cases and for the majority of complicated obstetrical problems, except those requiring consultants and facilities not available at this level.
- — *Level III obstetrical units* - provide care for normal patients and for all types of maternal illnesses and abnormalities required for the management of any complication of pregnancy.
- — *Neonatal special care unit* - a special unit in a hospital that provides care for high risk and ill newborn infants. Neonatal care units are usually divided into three levels:

Level I - provides care for normal newborns (the majority of newborns)

Level II - intermediate care unit, provides a full range of services for normal neonates and for certain neonatal illnesses and abnormalities

Level III - intensive care unit, may provide care for normal neonates but especially for serious types of neonatal illnesses and abnormalities. These centers should have 8,000 - 12,000 births per year in their service area.

- — *Perinatal services* - Obstetrical and neonatal units offering the same levels of care may be combined and referred to as perinatal units, Level I, II, or III.
- — *Pediatric services* - Designated for short-term care of children under 14 years of age; newborns are usually excluded.
- — *Psychiatric services* - Sometimes provided in

hospital of a community nature.

— *Emergency services* - Services provided on an outpatient basis to victims of sudden illness, injury, or accident, often resulting in admission to one of the above-mentioned services.

— *Organized outpatient services* - Routine services provided by the hospital to patients on an outpatient basis.

1.3 TRENDS

The Federal focus on the health care industry is related to the escalating costs of delivering health care services. From 1970 to 1979, expenditures for health care services have risen 92 percent nationally. Comparatively, national health expenditures in 1970 accounted for 7.2 percent of the Gross National Product (GNP). Seven years later, national health expenditures accounted for 8.8 percent of the nation's GNP. (Table 1)

Relating the medical care index to the consumer price index (see Figure 1) illustrates that medical care prices have risen at a faster rate than consumer prices. There are a number of factors in the economy which have caused health care costs to rise somewhat more rapidly than the general inflationary rate. Among the factors which served to affect the rise in health care costs are: (1) increased specialization; (2) increased number of personnel and the personnel costs associated with increased specialization; (3) sophisticated technological advancements; (4) increased insurance costs, primarily attributable to malpractice; (5) increased costs of normal business transactions with private industry as a result of inflation; and (6) increased expectations and demand for health care by the population.

Table 2 depicts nine statistics for general community hospitals in Montana for a five year period, 1975 to 1979. A review of these statistics shows that during this five year period:

— Patient admissions from 1975 to 1978 increased 8 percent, then decreased to a five year low in 1979. (The Montana population is estimated to have increased 6 percent.)

— Patient days have decreased 8 percent. The average length of stay has also decreased.

— Total operating costs for community hospitals in Montana increased from $84 million to $159 million — up 89 percent. The American Hospital Association attributes the rise in hospital costs to a number of factors, including an increase in the number of employees, increased salary levels, increases in such items as insurance, fuel and housekeeping supplies, new technological equipment and service purchases, more reliance on dept financing, and the increased cost associated with complying with government regulations.

— The cost per day and per stay also increased by 75 and 48 percent, respectively.

— One hundred licensed hospital beds have been taken out of service. The average reduction has been about one percent per year. Most hospitals have opted for fewer beds as they consider rebuilding or renovating.

— The annual occupancy rate has remained relatively stable. Over the last four years it varied from 54 to 57 percent.

— The number of beds per thousand population has dropped from 4.6 to 4.3 (-7 percent) and the number of patient days per thousand population dropped from 965 to 837 (-13 percent).

2.0 CURRENT SITUATION

2.1 AVAILABILITY

Montana has 61 private short-term acute care hospitals. These hospitals are distributed throughout the five health planning regions of Montana. Eight counties in Montana do not have hospitals; these are Blaine, Golden Valley, Jefferson, Judith Basin, Petroleum, Powder River, Treasure, and Wibaux counties. These counties without hospitals are serviced, as indicated by patient origin data, either by nearby community hospitals or the larger "regional" hospitals.

Table 3 indicates the regional distribution of hospital beds in Montana.

The overall distribution of hospital beds in Montana indicates that the larger hospitals (90-190 + beds) account for 62 percent of the total hospital beds, although these hospitals only account for 13 (21 percent) of the total hospitals. Similarly, 72 percent of the patient days are delivered in hospitals with 90-190 + beds (13 hospitals) and the remaining patient days (28 percent) are delivered by the other 48 hospitals in the less than 89 bed category.

In addition to beds, health care services and their availability are also important, since larger hospitals offer more services and more complex services. The health care services not available in the less than 30 bed hospital total 26 and range from open-heart surgery to paramedic training (this is taken from the Hospital Annual Report list of available services). Whereas, in the 190 + bed hospitals, the services not available total five, which include self care, burn care, family planning, genetic counseling and tuberculosis services. Of course, this is a rough comparison and should not be construed as promoting a particular mix of services at a particular hospital or for a particular hospital bed category, since economic socio-demographic, and administrative considerations are not considered.

2.2 ACCESSIBILITY

Patient origin data for general hospital beds indicate that community hospitals primarily serve the residents in the immediate service area. Tables B-1 through B-5 of the Appendix present two patient origin indicators for all hospitals in Montana, the percent of county discharges by the local hospital and the percent of county admissions to the local hospital.

Summarized by subarea, the number and percent of discharges originating from the same county as the hospital location are as follows:

Discharges From Same County As Hospital

REGION	NUMBER DISCHARGES	PERCENT
Eastern	16,451	65.90
North Central	20,692	77.74
South Central	22,089	82.20
Southwestern	23,747	75.91
Northwestern	22,662	82.49

Source - Department of Health and Environmental Sciences

As indicated, people in the Eastern Subarea travel outside their county more than those in other regions. This, of course, is probably due to the lack of a large, complex service mix of hospitals in the Eastern Subarea.

Another indicator of accessibility is the resident population within 30 minutes travel time to a hospital; indicated by the following:

% of Estimated Population Within 30 Minutes Travel Time

Eastern	51.4%*
North Central	63.4%*

South Central	62.1%*
Southwestern	63.5%*
Northwestern	60.6%*

*This is a conservative estimate based upon the population of cities and towns within an estimated 30 minute radius.

SOURCE — Department of Health and Environmental Sciences

Figure 2 shows the location of hospitals in Montana. Geographically, there are eight counties without a general hospital and 28 with a single hospital. All of these are rural. Four urban counties (Cascade, Lewis & Clark, Silver Bow and Yellowstone) and three rural counties (Choteau, Flathead and Madison) have two hospitals each.

One urban county (Missoula) and two rural (Lake and Roosevelt) each have three hospitals. The urban hospitals are all located in the same city, whereas the rural hospitals are in different communities. In addition, there are two V.A. Hospitals (Helena and Miles City) and three Indian Health Service Hospitals (Browning, Harlem and Crow Agency) which serve special population groups.

Tables 4 through 8 show 1979 general utilization statistics for each hospital by county and subarea. Two other series of tables showing 1979 statistics are presented in the Appendices. The first series deals with cost data and the second with general patient origin information.

At the present time, most of the smaller hospitals use a type of "swing bed" system where possible. The larger hospitals in Montana have set up departmental beds. Most of the small rural hospitals do not set aside medical/surgical, maternity and pediatric beds. Instead, they assign them as needed. For those that have allocated beds for specific use (i.e., units), the maternity and pediatric beds usually experience lower average occupancy rates than do the medical and surgical beds.

The swing bed concept has not extended to acute care and long-term care beds. Medicare and Medicaid do not recognize the swing bed concept under reimbursement guidelines. However, in recent years many of the small Montana hospitals have set up combined, but separate, hospital and long-term care facilities. At this time, 28 facilities (46 percent) provide these dual services and each combined facility has the same administrator.

Several experiments involving the sharing of services are being implemented in Montana. For example, group purchasing of selected items is a service currently offered by the Montana Hospital Association. In addition, many hospitals within the same area participate in consortiums to provide inservice education to their respective staffs. The satellite concept, where several small hospitals relate to a larger, regional facility, has not been successfully implemented in Montana. However, more and more of the smaller institutions are turning to professional management firms to operate their facilities.

Table 9 presents 1977, 1978, and 1979 utilization statistics for six of the larger hospitals in Montana. Each of these hospitals has a dedicated obstetrical unit, serves as a referral hospital in its region, has at least one physician specializing in obstetrics and gynecology on staff, and delivers at least 500 babies each year. In this select group of hospitals, there is a variance in the number of births (ranging from 510 to 2,242) and in the annual occupancy rate (37 percent to 71 percent).

Pediatric Services are consolidated in Helena where all nonemergency patients are admitted to Shodair Children's Hospital. In Billings, most pediatric patients (except pediatric surgery patients) are hospitalized at St. Vincent Hospital. In many small hospitals, dedicated pediatric units are not maintained. Instead, beds for pediatric patients are made available as needed.

Table 10 shows 1979 pediatric utilization statistics for the 13 Montana hospitals with over 100 beds and which maintain distinct pediatric units. The size of these units varies from 7 beds to 35 beds. (Shodair Children's Hospital serves only pediatric patients and maintains a total licensed bed complement of 20.) Overall, the annual occupancy rate of these units and the average length of stay are both less than general medical/surgical units. These observations are consistent with national trends.

2.3 COST

Critical care is a generic term used to include both intensive care and coronary care units. These units are specifically designated areas of the hospital where seriously ill or injured patients receive highly specialized services. In these units, specially trained nursing and support personnel are concentrated. Sophisticated electronic monitoring equipment provides continuous patient coverage and observation. Thus, if the patient experiences complications, corrective measures and life saving techniques can be quickly initiated.

Tables 4 through 8 also show the 1979 utilization statistics for critical care units in Montana hospitals. Critical care is highlighted because the utilization of these services is increasing (while other services are decreasing) and because it is felt that all hospitals have a responsibility to provide these services to the best of their ability, despite cost effectiveness considerations.

Larger hospitals typically designate critical care beds as distinct and separate units. Floor space, staff and equipment are all allocated specifically for these beds. Generally these units consist of four or more beds. In contrast, smaller hospitals typically use one or two medical/surgical beds located adjacent to the nursing station as the need for ICU/CCU beds arises. These are called "monitored beds." Staff are assigned as the situation dictates and the equipment used to monitor the beds may be portable. In smaller hospitals, critical care units are primarily used as an adjunct to the emergency medical system.

Tables A-1 through A-4 present cost statistics for all Montana hospitals.

3.0 FUTURE RESOURCE REQUIREMENTS

3.1 AVAILABILITY

Tables 11 through 15 indicate the estimated number of acute care hospital beds needed in 1985 in each hospital service area and MHSA subarea. Acute Psychiatric Beds are excluded in making these estimates. In these tables the bed need is estimated for each hospital by the following formula:

$$\text{Bed Need} = \text{ADC} + 3.00\sqrt{\text{ADC}}$$

where ADC = the annual average daily census (the estimated number of patients in the hospital on any given day)

The average daily census is based on the average number of patient days reported in 1977, 1978,and 1979 and is adjusted for expected population growth between 1979 and 1985.

$$\text{Adjusted ADC} = \frac{\text{Patient Days}}{365} \times \frac{\text{Population (1985)}}{\text{Population (1979)}}$$

The bed need model is based upon the probability that an unoccupied bed will be available 99.9 percent of the time when needed. It assumes that the daily census is distributed by a Poisson Distribution and that fluctuations occur around the average.

In utilizing this model, the hospitals' catchment areas are defined according to recent patient origin data generated by

the Department of Health and Environmental Sciences. As a result, service area populations are no longer constrained by the county population in which the hospital is located.

It is emphasized that these bed need calculations are rough estimates and are intended to be used as general guidelines when reviewing a hospital's application to replace, renovate or change its licensed bed capacity. The above assumptions prohibit more precise and detailed estimates. It is the responsibility of each hospital to provide detailed bed need estimates and supported justification when applying for a Certificate of Need.

The Department of Health and Environmental Sciences has projected bed need using 1979 data on inpatient days as opposed to three year average. The Department of Health and Environmental Sciences projections and resulting deficit or surplus bed counts are depicted in Tables 11-15.

3.2 ACCESSIBILITY

Because Montana has such a sparse population, the national goal of 4.0 beds per 1,000 population should not be applied to local situations. If it were applied at the local level, several small hospitals could not justify their existence, yet distance, accessibility and availability dictate that they be supported and remain open. If the 4.0 beds per 1,000 popultation were used to estimate the total number of hospital beds in the state, then more beds would be planned.

At the same time it is expected that the 1985 annual occupancy rate for all hospitals will be between 58 and 70 percent. The 1979 rate was 54.8 percent.

Tables 11 through 15 suggest that the following areas will need additional hospitals beds by 1985:

Flathead County	13 beds
Lewis and Clark County	9 beds
Sanders County	5 beds
Sheridan County	5 beds

Some areas appear to have substantial excess capacity. Those with 20 or more surplus beds include:

Lake County	25 beds
Missoula County	83 beds
Cascade County	96 beds
Hill and Blaine Counties	30 beds
Silver Bow County	95 beds
Custer and Powder River Counties	51 beds
Deer Lodge County	26 beds

3.3 COST

Most of the service areas experiencing excess bed capacity are also areas with more than one hospital. Although it would appear that alternative uses for some of these facilities could be explored and possibly implemented without reducing the accessibility of hospital services, no specific recommendations are made to close any facility. A crude analysis of the potential savings to be realized by closing selected small hospitals indicates that the savings would be approximately equal to the closed hospital's annual payroll. This analysis assumes that adjacent hospitals would serve the patients currently served by the closed facility and does not take into account such negative factors as paying off the debt retirement and other fixed overhead costs of the closed facility, local economic impact (multiplier effect of lost wages from the local economy) and the potential that the remaining hospitals will have to increase personnel to handle the increased load.

Consolidation of some services (e.g., obstetrical and pediatric) is feasible and will yield substantial savings in communities where they are currently duplicated.

The maldistribution of hospital beds with relation to the service area populations is one reason for the surplus of beds which some authors claim is as high as 100,000 nationwide. This surplus of beds is a contributing factor to the rising cost of hospital care. It is estimated that the cost of maintaining an empty bed which brings in no revenue is fifty to sixty percent of the cost of operating it when a revenue producing patient is in it. Nearly all of the costs associated with the bed accrue regardless of whether it is occupied or not. All of the fixed costs continue: heat, lights, insurance, maintenance, administration, support services such as laboratory, pharmacy, and others. Normally, the staffing by nursing persons and others who provide patient care does not bear a direct relationship to the number of patients who are being cared for at a given time, and thus these costs also continue.

4.0 GENERAL ANALYSIS

4.1 ALTERNATIVES AND ISSUES

The previous Health Systems Plan component on General Hospital Inpatient Services estimated bed need according to the hospital's previous years experience statistically and the county population where the hospital's located. This methodology ignored fluctuations in hospital utilization and assumed the catchment area of the hospital to be only be county of the hospital's location

This year's component averages the pertinent hospital statistics for the latest reporting period available, 1977, 1978, and 1979, and necessary to compute bed need estimates. Furthermore, a 12-month patient origin study completed by the Department of Health and Environmental Sciences was utilized to project service area populations based on the percentage of county residents using any given hospital.

5.0 EXCEPTIONS TO THE NATIONAL GUIDELINES

5.1 GENERAL HOSPITALS

The national guidelines identify two standards with which health plans must be consistent. These are:

- There should be no more than four non-federal, short-stay hospital beds for each 1,000 persons in a health service area except under extraordinary circumstances.
- There should be an average annual occupancy rate of at least 80 percent for all non-federal, short-stay hospital beds considered together in a health service area except under extraordinary circumstances.

With respect to the first standard, this plan, if fully implemented, calls for a bed-to-population ratio of 3.3 in 1985. If the number of beds now is the same in 1985, the bed-to-population ratio will be 3.9. The primary reason for this is that the state's population is expected to increase by nine percent by 1985. These two estimates represent the expected high and low estimates for the number of hospital beds per 1,000 population expected in Montana by 1985. The realized ratio will probably fall somewhere in between.

The MHSA policy of asking the facility to voluntarily consider a reduction in bed capacity when rebuilding and renovating seems to be working. Since 1975 the number of licensed hospital beds in Montana has decreased about one percent per year.

The Native American and veterans populations are included in the population estimates because the majority of these populaiton groups use community hospitals rather than special government facilities.

With respect to the second national standard (occupancy), the state must have an exception. This exception is based on the fact that 59 out of the 61 hospitals [illegible]

tana have less than 4,000 admissions per year. It is estimated that the annual occupancy rate of community hospitals in Montana will probably be between 58 and 70 percent in 1985.

5.2 OBSTETRICAL SERVICES

The national guidelines state the following three standards for obstetrical services:

1. They should be planned on a regional basis.
2. Units providing complicated services should have at least 1,500 births annually.
3. The average occupancy rate of these units should be at least 75 percent.

This plan component and the one on neonatal intensive care units encourage and support the regional development of obstetrical services —with the understanding that the small community hospitals maintain the capability of performing routine deliveries. One of the suggestions made in this plan has been to consider consolidating obstetrical units in multi-hospital communities

Some Montana hospitals, however, cannot meet the criterion of 1,500 births annually, now or in 1985. The Neonatal Intensive Care Unit component identifies three facilities as Level II units. Three more provide specialized care beyond the normal delivery level. These are listed in Table 9. Billings, Missoula, Kalispell and Bozeman have only one facility offering obstetrical services. Yet, only St. Vincent Hospital in Billings meets and exceeds the national standards. Obstetrical services are offered in more than one facility in both Great Falls and Butte. If they were consolidated in one facility, Great Falls would comply with the national guidelines. The above communities are 120 plus miles apart, therefore inter-city transport of obstetrical patients is unreasonable.

Therefore, the MHSA requests an exception from the national standards for these Montana facilities.

5.3 PEDIATRIC SERVICES

The national guidelines specify the following criteria for pediatric units in urban areas:

1. Each unit should contain at least 20 beds, and
2. Units with 20 to 39 beds should have an average annual occupancy rate of 65 percent.

In Montana the MHSA is considering pediatric units in hospitals of 100 or more beds. Hospitals with bed complements of less than 100 beds usually use swing beds as needed for their pediatric patients and have no dedicated staff assigned specifically to pediatric coverage. This is roughly analogous to the "urbanized area" phrase in the guidelines.

Table 10 shows 1977, 1978, and 1979 utilization statistics for these selected pediatric units in the larger hospital in Montana. Figure 3 shows the location of these hospitals with a 30-minute radius superimposed on the map.

Two general problems with the national guidelines emerge. First, although pediatric units are established in most of the major towns, there is still a very large land area and population which is outside the 30-minute guideline. Secondly, although units of 20 or more beds are desirable, the population base served by these hospitals cannot support them.

The Montana MHSA has recommended that pediatric units in multi-hospital communities be consolidated. This could affect services in Butte, Great Falls, Missoula and Billings. It has been estimated that consolidation could amount to a systems savings of as much as $275,000 per year if it were implemented in all four of these communities. In the other communities, the MHSA is recommending that the number of pediatric beds be commensurate with current utilization patterns. This means a conflict between the MHSA's objectives, policies and recommendations and national guidelines. Consequently, an exception is requested.

Using the stochastic planning model for estimating bed need, the MHSA is requiring units of 20 beds to have an average occupancy rate of at least 50 percent. However, we are not specifying how many beds are needed in each department. The allocation of beds within the facility should be the responsibility of the administrator.

Justification for these exceptions are based primarily on the lack of a sufficient population base to support such large units in Montana. If all pediatric units were required to have at least 20 beds, there would be a surplus of such beds. On the other hand, if all units were required to maintain an average annual occupancy of 65 percent, then this might lead to an insufficient bed supply so as to deny access to appropriate and reasonable medical care. (This means that a 10-bed unit must maintain an average daily census of 6.5 patients and if this were maintained, it is estimated that 10 percent of the time the unit would be full and no bed would be available for a new patient.)

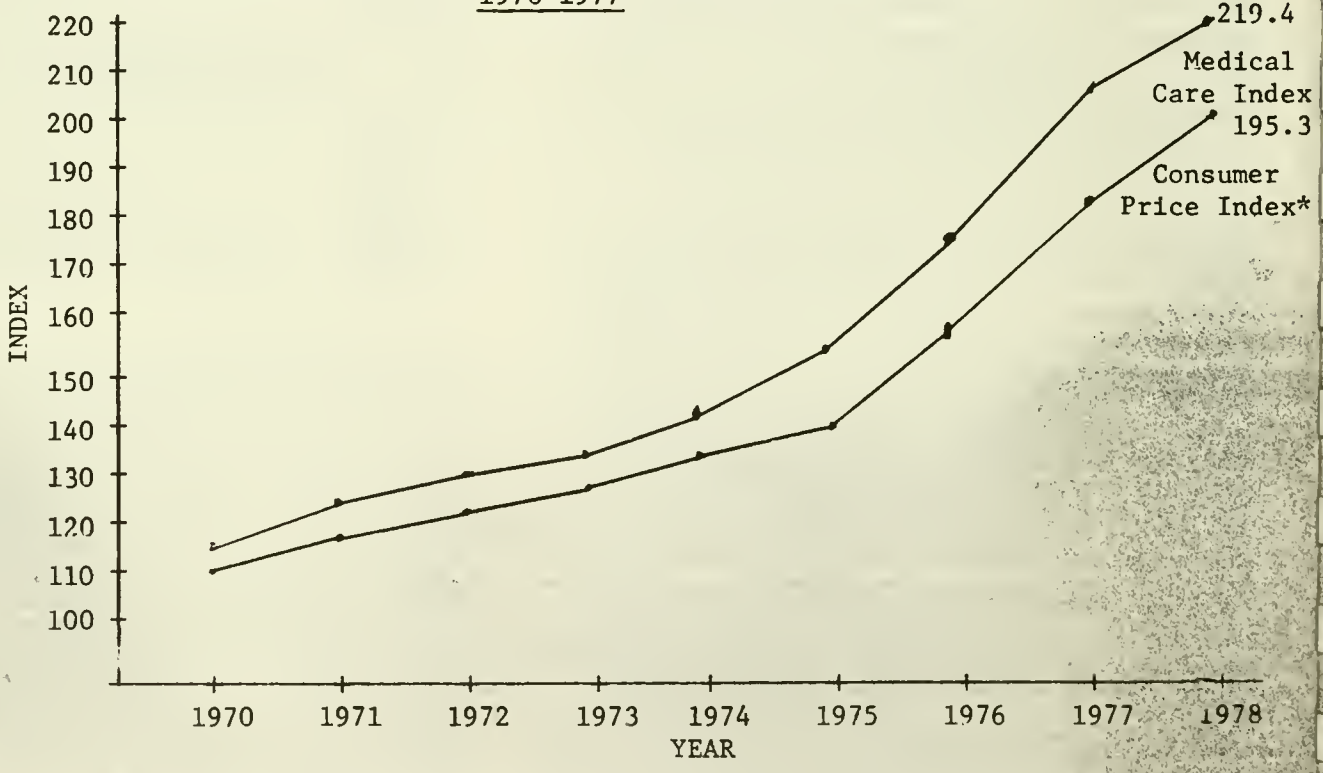
RISE IN NATIONAL HEALTH EXPENDITURES
1970-1977

	1970	1971	1972	1973	1974	1975	1976	1977	1978
GROSS NATIONAL PRODUCT (in billions)	982.4	1063.4	1171.1	1306.6	1412.9	1528.8	1706.5	1889.6	2127.6
NATIONAL HEALTH EXPENDITURES									
Amount in millions	69,202	66,162	86,687	95,383	106,321	123,716	141,018	162,627	192,000
Percent of GNP	7.2	7.6	7.8	7.7	7.8	8.5	8.7	8.8	9.0

Table 1

Figure 1

A COMPARISON OF MEDICAL CARE AND CONSUMER PRICE INDEXES
1970-1977



*Medical Care Index Included

Source: Statistical Abstract of the United States, 1977, United States Department of Commerce, Bureau of the Census.

	Number Patient Admissions	Number Patient Days	Total Operating Costs ($ Million)	Adjusted Costs Per Day
1975	121,424	721,494	$ 83.9	$114[1]
1976	133,435	701,545	102.2	132[1]
1977	130,868	686,232	123.9	159[1]
1978	131,568	688,064	142.9	183[1]
1979	119,738	662,005	159.2	200

	Adjusted Costs Per Adm.	Licensed Beds	Annual Occupancy Rate	Beds/1,000 Population	Patient Days/1,000 Population
1975	$621[1]	3,475	56.9	4.6	965
1976	728[1]	3,443	55.8	4.6	932
1977	830[1]	3,410	55.1	4.5	902
1978	965[1]	3,368	56.0	4.4	899
1979	921	3,384	53.6	4.3	837

[1]Statistics furnished by the Montana Hospital Association. These have been adjusted by the Hospital Association to exclude out-patient costs and utilization, and modified by the Montana Health Systems Agency.

TABLE 2

Utilization and Cost Statistics for
Montana Hospitals (1975-1979)

Source: Unpublished data from hospital annual reports

No. of Beds	No. of Hospitals	Total No. of Beds	No. and Percent of Beds (Subarea)				
			Eastern	No. Cent.	So. Cent.	So. West.	No. West.
30	30	506 (15%)	152 (30%)	103 (20%)	128 (25%)	68 (13%)	55 (11%)
30 - 89	18	786 (23%)	221 (28%)	50 (6.4%)	47 (6.0%)	215 (27%)	253 (32%)
90 - 189	8	981 (29%)	120 (12%)	120 (12%)	--- ---	535 (55%)	206 (21%)
190 +	5	1,111 (33%)	--- ---	472 (42%)	422 (38%)	--- ---	217 (20%)
TOTAL	61	3,384	493 (15%)	745 (22%)	597 (18%)	818 (24%)	731 (22%)

TABLE 3A

Hospital Bed Distribution by Subarea

Source - Department of Health and Environmental Sciences

SUBAREA	BEDS	1980 POPULATION	BEDS/1000 POPULATION
Eastern	493	103,089	4.8
Northwestern	731	186,222	3.9
North Central	745	149,940	5.0
Southwestern	818	189,840	4.3
South Central	597	160,741	3.7
MONTANA TOTAL	3384	789,832	4.3

TABLE 3B

Beds Per 1000 Population By Subarea

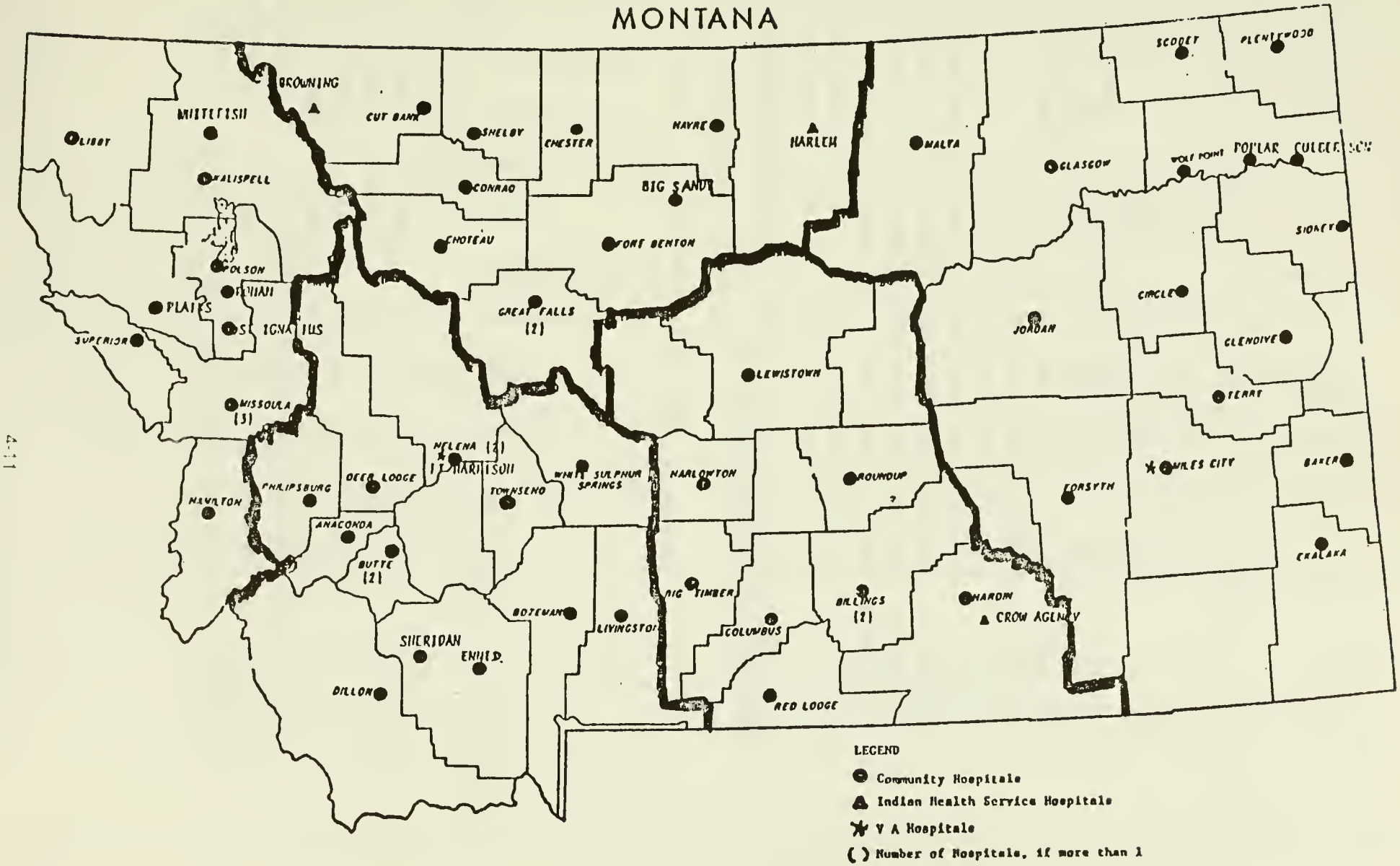


FIGURE 2 LOCATION OF ACUTE CARE HOSPITALS IN MONTANA

Hospital	City	General Acute & Critical Care Beds	Number Patient Days	Number Admissions	Average Occupancy Rate	ALOS[1]	Critical Care Beds	Number Patient Days	Number Admissions	Average Occupancy Rate	ALOS[1]
Kalispell Regional	Kalispell	110	25932	5893	64.6	4.4	8	1392	--	47.7	--
North Valley	Whitefish	48	8495	1952	48.5	4.4	4	509	171	34.9	3.0
St. Joseph	Polson	40	5341	1241	36.6	4.3	2	328	100	44.9	3.3
St. Luke Community	Ronan	27	4238	960	43.0	4.4	--	--	--	--	--
St. John's Lutheran	Libby	34	4884	1233	39.4	4.0	2	137	66	18.8	2.1
Mineral County	Superior	10	1078	302	29.5	3.6	2	149	41	20.4	3.6
Missoula Community	Missoula	115	19451	5268	46.3	3.7	6	--	635	--	--
Missoula General	Missoula	45	7089	1532	43.2	4.6	5	158	57	8.7	2.8
St. Patrick	Missoula	207	46108	8070	61.0	5.7	13	3050	654	64.3	4.7
Mission Valley	St. Ignatius	30	3028	742	27.7	4.1	2	100	16	13.7	6.3
Marcus Daly Memorial	Hamilton	43	9240	2204	52.7	4.2	2	214	117	29.3	1.8
Clark Fork Valley	Plains	20	4589	910	62.9	5.0	2	106	26	14.5	4.1

1) Average Length of Stay

TABLE 4 - Utilization Statistics (1979) for General Acute and Critical Care in Northwestern Montana Hospitals

Source - Department of Health and Environmental Sciences

Hospital	City	General Acute & Critical Care Beds	Number Patient Days	Number Admissions	Average Occupancy Rate	ALOS[1]	Critical Care Beds	Number Patient Days	Number Admissions	Average Occupancy Rate	ALOS[1]
Columbus	Great Falls	190	53893	8684	77.7	6.2	14	3390	--	66.3	--
Montana Deaconess	Great Falls	282	55172	9962	53.6	5.5	24	7410	1184	84.6	6.3
Big Sandy	Big Sandy	9	1117	239	34.0	4.7	--	--	--		--
Chouteau County	Fort Benton	17	1511	257	24.4	5.9	--	--	--	--	--
Memorial	Cut Bank	20	3525	825	48.3	4.3	2	192	5.	26.3	3.6
Northern Montana	Havre	120	21960	4622	50.1	4.8	7	1403	433	54.9	3.2
Liberty County	Chester	11	1351	337	33.6	4.0	2	177	--	24.2	-
Pondera County	Conrad	50	7426	1508	40.7	4.9	2	253	77	34.7	3.3
Teton Medical	Choteau	22	3120	752	38.9	4.1	--	--	--	--	
Toole County	Shelby	74	2540	561	27.9	4.3	2	102	49	14.7	-

1) Average Length of Stay

TABLE 5 - Utilization Statistics (1979) for General Acute and Critical Care in North Central Montana Hospitals

Source - Department of Health and Environmental Sciences

Hospital	City	General Acute & Critical Care					Critical Care				
		Beds	Number Patient Days	Number Admissions	Average Occupancy Rate	ALOS[1]	Beds	Number Patient Days	Number Admissions	Average Occupancy Rate	ALOS[1]
Barrett	Dillon	31	3201	874	28.3	3.7	2	118	61	16.2	1.9
Broadwater	Townsend	21	1807	335	23.6	5.4	1	25	8	6.8	3.1
Community	Anaconda	54	7393	1732	37.5	4.3	3	55	26	5.0	2.1
Bozeman Deaconess	Bozeman	104	20920	4975	55.1	4.2	4	726	--	49.7	--
Granite County Memorial	Philipsburg	6	431	113	19.7	3.8	2	192	54	26.3	3.6
St. Peter's Community	Helena	111	32817	5959	81.0	5.5	7	1596	470	62.5	3.4
Shodair	Helena	20	4143	1364	56.8	3.0	--	--	--	--	--
Madison Valley	Ennis	13	1709	379	36.0	4.5	1	46	14	12.6	3.3
Ruby Valley Memorial	Sheridan	20	2109	476	28.9	4.4	2	13	7	1.8	1.9
Mountainview Memorial	White Sulphur	6	630	143	28.8	4.4	2	--	--	--	--
Livingston Memorial	Livingston	54	6733	1502	34.2	4.5	4	437	137	29.9	3.2
Powell County Memorial	Deer Lodge	35	5849	1083	45.8	5.4	--	--	--	--	--
St. James Community	Butte	180	39697	6925	60.4	5.7	12	2179	421	49.7	5.2
Silver Bow General	Butte	140	22296	3589	43.6	6.2	2	374	137	51.2	2.7

1) Average Length of Stay

TABLE 6 - Utilization Statistics (1979) for General Acute and Critical Care in Southwestern Montana Hospitals

Source - Department of Health and Environmental Sciences

Hospital	City	General Acute & Critical Care					Critical Care				
		Beds	Number Patient Days	Number Admissions	Average Occupancy Rate	ALOS[1]	Beds	Number Patient Days	Number Admissions	Average Occupancy Rate	ALOS[1]
Big Horn Co. Memorial	Hardin	16	3302	821	56.5	4.0	--	--	--	--	--
Carbon Co. Memorial	Red Lodge	28	4203	845	41.1	5.0	2	217	57	29.7	3.8
Central Montana	Lewistown	47	12043	2386	70.2	5.0	4	832	132	57.0	6.3
Stillwater Community	Columbus	27	3291	709	33.4	4.6	2	81	--	11.1	--
Sweet Grass Community	Big Timber	17	826	214	13.3	3.9	--	--	--	--	--
Wheatland Memorial	Harlowton	23	1519	400	18.1	3.8	--	--	--	--	--
Billings Deaconess	Billings	194	54342	7908	76.7	6.9	21	5197	729	67.8	7.1
St. Vincent	Billings	237	68399	13093	79.1	5.2	12	3385	648	77.3	5.2

1) Average Length of Stay

TABLE 7 - Utilization Statistics (1979) for General Acute and Critical Care in South Central Montana Hospitals

Source - Department of Health and Environmental Sciences

Hospital	City	General Acute & Critical Care					Critical Care				
		Beds	Number Patient Days	Number Admissions	Average Occupancy Rate	ALOS 1)	Beds	Number Patient Days	Number Admissions	Average Occupancy Rate	ALOS 1)
Dahl Memorial	Ekalaka	16	248	70	4.2	3.5	--	--	--	--	--
Holy Rosary	Miles City	66	15741	2919	65.3	5.4	5	--	--	--	--
Daniels Memorial	Scobey	8	1470	315	50.3	4.7	--	--	--	--	--
Glendive Community	Glendive	46	7925	1566	47.2	5.1	2	340	97	46.6	3.5
Fallon Memorial	Baker	22	1086	327	13.5	3.3	1	8	6	2.2	1.3
Garfield County	Jordan	8	744	218	25.5	3.4	1	13	6	3.6	2.2
McCone County	Circle	20	2700	553	37.0	4.9	--	--	--	--	--
Phillips County	Malta	29	5638	815	53.3	6.9	1	161	39	44.1	4.1
Prairie Community	Terry	7	1037	171	40.6	6.1	1	22	7	6.0	3.1
Community Memorial	Sidney	55	9985	2065	49.7	4.8	4	503	167	34.5	3.0
Roosevelt Memorial	Culbertson	14	2258	513	44.2	4.4	--	--	--	--	--
Poplar Community	Poplar	22	2740	663	34.1	4.1	1	--	5	--	--
Trinity Hospital	Wolf Point	42	6175	1244	40.3	5.0	1	--	--	--	--
Rosebud Community	Forsyth	18	1411	343	21.5	4.1	--	--	--	--	--
Sheridan Memorial	Plentywood	21	5650	896	73.7	6.3	2	106	26	14.5	4.1
Frances Mahon Deaconess	Glasgow	48	7938	1737	45.3	4.6	4	--	--	--	--

1) Average Length of Stay

TABLE 8 - Utilization Statistics (1979) for General Acute and Critical Care in Eastern Montana Hospitals

Source - Department of Health and Environmental Sciences

Facility	Town	No. Births 1977	1978	1979	Size of Ob. Unit	Annual Occupancy Rate 1977	1978	1979
Missoula Community*	Missoula	1,301	1,300	1,427	17	52.0%	60.2%	66.8%
Kalispell Regional	Kalispell	758	707	726	10	91.3%	78.9%	48.8%
Montana Deaconess*	Great Falls	1,229	1,217	1,193	21	58.9%	57.6%	58.0%
St. James Community	Butte	580	510	510	11	55.7%	50.6%	37.0%
Bozeman Deaconess	Bozeman	652	667	728	14	38.2%	38.4%	39.8%
St. Vincent*	Billings	1,883	2,111	2,242	24	86.2%	80.2%	71.2%

*Identified as Level II Neonatal Intensive Care Centers in Montana

Source - Department of Health and Environmental Sciences

Table 9 - Utilization Statistics
And Performance Indicators for Hospitals in Montana
Offering Complicated Obstetrical Services

Subarea & Hospital	City	Beds 1977	1978	1979	Number Admissions 1977	1978	1979	Number Patient Days 1977	1978	1979	Average Occupancy Rate 1977	1978	1979	Average Length of Stay 1977	1978	1979
Eastern																
Holy Rosary	Miles City	11	11	5	231	220	239	646	551	870	16.1	13.7	47.7	2.8	2.5	3.6
North Central																
Columbus	Great Falls	29	21	21	1362	1223	NA	4213	3723	3100	39.8	48.6	41.7	3.1	3.0	NA
Montana Deaconess	Great Falls	20	20	20	1170	1020	891	3678	3199	2761	50.4	43.8	37.3	3.1	3.1	3.1
Northern Montana	Havre	12	12	12	912	855	796	2633	2587	2567	60.1	59.1	58.6	2.9	3.0	3.2
South Central																
Billings Deaconess	Billings	10	19	19	356	306	1097	1283	1129	4276	35.2	16.3	61.7	3.6	3.7	3.9
St. Vincent	Billings	28	28	28	1554	2046	1389	8099	8099	7255	79.2	79.2	71.0	5.2	4.0	5.2
Southwestern																
Bozeman Deaconess	Bozeman	7	7	NA	452	405	395	1217	1272	998	47.6	49.8	NA	2.7	3.1	2.5
Shodair Children's	Helena	35	35	20	1362	1358	1364	4552	4624	4143	35.6	36.2	56.8	3.3	3.4	3.0
St. James Community	Butte	23	23	11	1161	284	524	3546	1210	1484	42.2	14.4	37.0	3.1	4.3	2.8
Silver Bow General	Butte	14	10	10	217	1242	370	1074	409	976	21.0	11.2	26.7		.3	2.6
Northwestern																
Kalispell Regional	Kalispell	8	8	8	708	613	580	1660	1400	1427	56.8	47.9	19.9	2.3	2.3	2.5
Missoula Community	Missoula	10	10	10	600[1]	557	458	2408[1]	1212	982	NA	33.2	26.9	NA	2.2	2.1
St. Patrick	Missoula	30	23	30	1088	945	886	4953	2716	2565	45.2	32.4	23.4	4.6	2.9	2.9

1 Discharge Data

Table 10 - Utilization Statistics (1977, 1978, and 1979) for Pediatric Units in Selected Montana Hospitals (Between 100 & 500 Beds)

Source - Department of Health and Environmental Sciences

County	Hospital	3 Year Patient Day Average (1977,1978,1979)	1979 Service Area Population[1]	1985 Service Area Population[1]	Adjusted Daily Census (1985)	Estimated Bed Need (1985) MHSA	Estimated Bed Need (1985) DHES	Licensed Beds (1980)	Deficit (+) Surplus (-) MHSA	Deficit (+) Surplus (-) DHES
Flathead	Kalispell Regional Hospital	26,406	39,697	45,059	79.6	106	115	91	+15	+24
	North Valley Hospital	8,878	13,679	15,542	26.8	42	41	44	- 2	- 3
Lake	St. Joseph Hospital	5,971	6,733	7,364	18.0	31	28	40	- 9	-12
	St. Luke Community Hospital	3,983	4,646	5,076	12.0	22	24	25	- 3	- 1
	Mission Valley Hospital	2,719	3,852	4,213	8.2	17	18	30	-13	-12
Lincoln	St. John's Lutheran Hospital	4,821	10,084	10,445	13.2	24	25	34	-10	- 9
Mineral	Mineral County Hospital	1,149	1,497	1,695	3.5	9	8	10	- 1	- 2
Missoula	Missoula Community Hospital	22,159	36,337	39,852	66.8	91	81	115	-24	-34
	Missoula General Hospital	7,658	9,733	10,644	23.1	38	35	57	-19	-22
	St. Patrick Hospital	44,870	49,962	57,430	141.0	177	181	217	-40	-36
Ravalli	Marcus Daly Memorial	9,460	12,564	13,735	28.5	45	44	48	- 3	- 4
Sanders	Clark Fork Valley Hospital	4,593	4,808	5,325	13.8	25	25	20	+ 5	+ 5
	Subarea Total	142,667	193,592	216,380	430.0	620	625	731	-111	-106

Table 11 - 1985 Bed Need Estimates For
General Acute Care and Critical Care Units
In Northwestern Montana Hospitals

[1] Source - Department of Health and Environmental Sciences, Relevance Index used to compute service area populations.

County	Hospital	3 Year Patient Day Average (1977,1978,1979)	1979 Service Area Population[1]	1985 Service Area Population[1]	Adjusted Daily Census (1985)	Estimated Bed Need (1985) MHSA	Estimated Bed Need (1985) DHES	Licensed Beds (1980)	Deficit (+) Surplus (-) MHSA	Deficit (+) Surplus (-) DHES
Cascade	Columbus Hospital	52,557	50,551*	52,714*	144.0	180	192	190	- 10	- 12
	Montana Deaconess Medical Center	57,865	59,703	67,421	158.4	196	196	282	- 86	- 86
Choteau	Big Sandy Medical Center	1,271	1,106	1,146	3.5	9	8	9	0	- 1
	Choteau County District Hospital	1,899	1,277	1,323	5.2	12	10	17	- 5	- 7
Glacier	Memorial	3,920	5,308	5,516	10.7	21	19	20	+ 1	- 1
Hill & Blaine	Northern Montana Hospital	21,702	22,809	24,123	65.4	90	80	120	- 30	- 40
Liberty	Liberty County Hospital	1,562	2,640	2,801	4.7	11	10	11	0	- 1
Pondera	Pondera County Hospital	8,809	7,629	7,953	24.1	39	34	50	- 11	- 16
Teton	Teton Medical Center	3,263	3,897	4,383	9.8	19	19	22	- 3	- 3
Toole	Toole County Hospital	2,382	2,882	2,970	6.5	14	15	24	- 10	- 9
	Subarea Total	155,230	157,802	170,350	467.8	591	583	745	-154	-162

*Excluding new horns

Table 12 - 1985 Bed Need Estimates for
General Acute Care and Critical Care Units
In North Central Montana Hospitals

[1] Source - Department of Health and Environmental Sciences, Relevance Index used to compute service area population.

County	Hospital	3 Year Patient Day Average (1977,1978,1979)	1979 Service Area Population[1]	1985 Service Area Population[1]	Adjusted Daily Census (1985)	Estimated Bed Need (1985) MHSA	Estimated Bed Need (1985) DHES	Licensed Beds (1980)	Deficit (+) Surplus (-) MHSA	Deficit (+) Surplus (-) DHES
Beaverhead	Barrett Hospital	3,623	4,979	5,205	9.9	19	22	31	- 12	- 9
Broadwater	Broadwater Hospital	1,958	1,515	1,714	5.9	13	13	21	- 8	- 8
Deer Lodge	Community Hospital of Anaconda	7,456	9,096	9,506	20.4	34	34	60	- 26	- 26
Gallatin	Bozeman Deaconess Hospital	21,222	42,406	46,069	64.0	88	87	104	- 16	- 17
Granite	Granite County Hospital	578	588	621	1.7	6	6	10	- 4	- 4
Lewis & Clark & Jefferson	St. Peters Hospital	33,554	35,408	40,257	101.1	131	132	111	+ 20	+ 21
	Shodair Crippled Children's Hospital	4,440	7,940	9,055	13.4	24	24	35	- 11	- 11
Madison	Madison Valley Hospital	1,894	2,064	2,104	5.2	12	12	11	+ 1	+ 1
	Ruby Valley Memorial Hospital	2,001	2,454	2,490	5.5	13	13	20	- 7	- 7
Meagher	Mountainview Memorial Hospital	885	809	824	2.4	7	6	6	+ 1	0
Park	Livingston Memorial Hospital	7,379	9,025	10,106	22.2	36	35	54	- 18	- 19
Powell	Powell County Memorial	5,481	5,896	6,573	16.5	29	31	35	- 6	- 4
Silver Bow	St. James Community	40,551	35,074	36,450	111.1	143	145	180	- 37	- 35
	Silver Bow General	21,610	17,246	17,962	59.2	82	86	140	- 58	- 54
	Subarea Total	152,632	174,500	188,936	460.0	637	646	818	-181	-172

Table 13 - 1985 Bed Need Estimates for
General Acute Care and Critical Care Units
In Southwestern Montana Hospitals

[1] Source ... Environmental Sciences. Relevance Index used to compute service area population.

County	Hospital	3 Year Patient Day Average (1977,1978,1979)	1979 Service Area Population[1]	1985 Service Area Population[1]	Adjusted Daily Census (1985)	Estimated Bed Need (1985) MHSA	Estimated Bed Need (1985) DHES	Licensed Beds (1980)	Deficit (+) Surplus (-) MHSA	Deficit (+) Surplus (-) DHES
Big Horn	Big Horn County Memorial	2,911	4,436	4,618	8.0	16	14	16	0	+ 2
Carbon	Carbon County Memorial	4,326	4,060	4,457	13.0	24	24	28	- 4	0
Fergus Petroleum & Judith Basin	Central Montana Hospital	10,163	12,860	13,341	27.8	44	51	47	- 3	- 4
Stillwater	Stillwater Community	3,788	3,875	4,322	11.4	22	19	27	- 5	- 8
Sweet Grass	Sweet Grass Community	1,161	1,317	1,417	3.5	9	6	17	- 8	- 11
Musselshell	Roundup Memorial Hosp.[2]	--	--	--	--	--	--	17	--	--
Wheatland & Golden Valley	Wheatland Memorial Hospital	1,725	1,721	1,719	4.7	11	10	23	- 12	- 13
Yellowstone	Billings Deaconess Hospital	53,766	42,803	47,537	162.0	200	204	197	- 3	+ 7
	St. Vincent Hospital	68,541	108,205*	122,122*	296.6	250	255	225	+ 25	+ 30
SUBAREA TOTAL		146,381	179,277	199,533	441.1	576	587	580[3]	- 4	+ 7

*Excluding New Borns

Table 14 - Bed Need Estimates For
General Acute Care and Critical Care Units
In South Central Montana Hospitals

[1]Source - Department of Health and Environmental Sciences. Relevance Index used to compute service area population.

[2]Data unavailable due to closure of facility and reopening in June 1979.

[3]Excluding beds at Roundup Memorial.

County	Hospital	3 Year Patient Day Average (1977,1978,1979)	1979 Service Area Population[1]	1985 Service Area Population[1]	Adjusted Daily Census (1985)	Estimated Bed Need (1985) MHSA	Estimated Bed Need (1985) DHES	Licensed Beds (1980)	Deficit (+) Surplus (-) MHSA	Deficit (+) Surplus (-) DHES
Carter	Dahl Memorial Hospital	642	669	680	1.8	6	6	16	- 10	- 10
Custer & Powder River	Holy Rosary Hospital	16,108	17,854	19,037	48.5	69	66	120	- 51	- 54
Daniels	Daniels Memorial Hospital	1,489	2,399	2,510	4.1	10	10	8	+ 2	+ 2
Dawson & Wibaux	Glendive Community Hospital	9,153	9,985	10,885	27.6	43	39	46	- 3	- 7
Fallon	Fallon Memorial Hospital	1,180	2,275	2,425	3.6	9	8	19	- 10	- 11
Garfield	Garfield County Hospital	463	975	1,032	1.4	5	6	8	- 3	- 2
McCone	McCone County Hospital	3,023	2,515	2,636	8.3	17	16	20	- 3	- 4
Phillips	Malta Hospital	6,543	3,420	3,588	17.9	31	28	30	+ 1	- 2
Prairie	Prairie Community Hospital	915	845	862	2.5	7	8	6	+ 1	+ 2
Richland	Community Memorial	11,561	8,927	9,650	34.8	52	46	55	- 3	- 9
Roosevelt	Roosevelt Memorial Hospital	2,639	2,174	2,280	7.2	15	15	14	+ 1	+ 1
	Poplar Community Hospital	2,968	2,827	2,965	8.1	17	16	22	- 5	- 6
	Trinity	6,975	5,808	6,172	21.0	35	31	42	- 7	- 11
Rosebud & Treasure	Rosebud Community Hospital	1,990	2,669	2,769	5.5	13	10	18	- 5	- 8
Sheridan	Sheridan Memorial Hospital	5,324	4,787	4,927	14.6	26	28	21	+ 5	+ 7
Valley	Frances Mahon Deaconess	8,171	12,377	13,907	24.6	39	39	48	- 9	- 9
	Subarea Total	79,144	80,506	86,325	238.5	394	372	493	- 99	-121

Table 15 - 1985 Bed Need Estimates for
General Acute Care and Critical Care Units
In Eastern Montana Hospitals

[1] Source - Department of Health and Environmental Sciences, Relevance Index used to compute service area population.

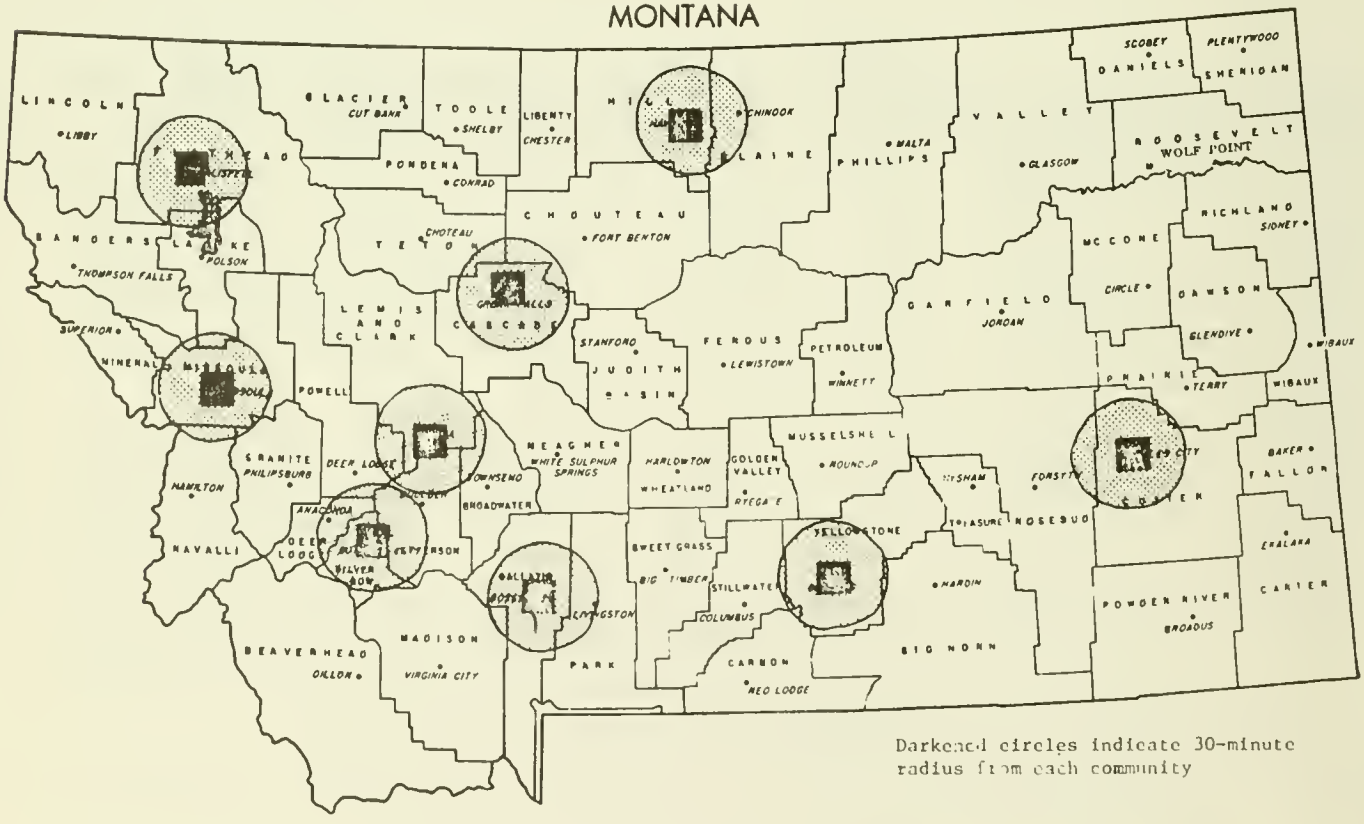


Figure - Location of Hospitals in M[illegible]
With Pediatric Units

APPENDIX 1

Total Annual Expenses, Estimated Adjusted Expenses per Inpatient Day, and Adjusted Expenses per Inpatient Admission in Montana Hospitals in 1979.

All statistics were provided by the Montana Hospital Association and were based upon data from a joint survey in which they cooperated with the Montana State Department of Health and Environmental Sciences.

"Expenses" represent the total cost of operating each hospital — both inpatient and outpatient.

"Cost per Day and Cost per Admission" statistics were calculated by the Hospital Association and adjusted to reflect only inpatient data using the following formula:

$$\text{COST/DAY} = \frac{\text{Total Expenses}}{\text{Inpatient Days} + \frac{\text{Gross Outpt. Revenue per Outpt. Visit}}{\text{Gross Inpt. Revenue per Inpt. Day}}}$$

$$\text{COST/ADMISSION} = \frac{\text{Total Expenses}}{\text{Inpatient Adms.} + \frac{\text{Gross Outpt. Revenue per Outpt. Visit}}{\text{Gross Inpt. Revenue per Admission}}}$$

APPENDIX 2

Selected Patient Origin Statistics
For Montana Hospital

Discharges — Percentage statistic rrepresents the proportion of county residents served by local hospital. Data source is Patient Origin Report 1979, Health Planning and Development Bureau.

Admissions — Percentage statistic represents the proportion of the hospital's admissions which come from the county. Data source is Unpublished data from the 1979 Hospital and Related Facilities Annual Report, Department of Health and Environmental Sciences (DHES), State of Montana.

APPENDIX 3

RECOMMENDED REVIEW CRITERIA

Acute Care Hospital Beds

1. The construction, addition or modernization of acute care hospital beds should be financially feasible. In concert with this general guideline, the following criteria are recommended:
   - — No new general hospitals should be approved unless the area in which the proposed hospital will be located is not and cannot be served by existing hospitals.
   - — Proposed expansion and major modernization plans subject to Certificate of Need reviews must be compatible with the estimated bed need of the service area. The bed need figures are to be used as guidelines and not standards. When reviewing a proposed application, the committee should consider local factors which the estimates do not take into account.
   - — In deciding between modernization or replacement the most cost effective solution should be favored.
   - — Small hospitals (less than 50 beds) should emphasize a "swing bed" concept rather than establishing separate Medical/Surgical, Obstetrical and Pediatric Units. Where and when possible, the swing bed concept should also be extended to long-term care beds. Until legislation is passed permitting the use of swing long-term beds, small hospitals should consider developing combination facilities (hospitals — long-term facilities — community health centers). In addition, physician clinics should be located in close proximity to the small hospital so that essential support services such as laboratory and X-ray need not be duplicated.

   Two organizational and operational concepts which might reduce hospital costs should be explored and encouraged — satellite systems and shared services. The satellite system refers to an arrangement in which a large urban hospital offers a broad range of medical services while several outlying hospitals provide more routine care. Each member hospital has access to all the professional services available to the system as a whole.

   Collaborative arrangements and shared services are not as rigid as the satellite system and may also lead to increased efficiency and improved patient care. Examples of services which might be shared by two or more hospitals are:

   - — Central purchasing
   - — Administration
   - — Automation and computers
   - — Dietary
   - — Engineering
   - — Laundry
   - — Library
   - — In-service education

   Although these strategies may not be practical and economical in Montana because of the distances involved, the possibility of establishing such programs should be explored.
2. Hospital services should be distributed to support and promote health care.
3. General hospitals and their medical staffs should work with other health professionals toward the development of primary care, home health and other out-of-hospital community services to improve access to care.
4. Hospitals should closely link to other types of levels of care through organized referral and patient transfer arrangements to assist in the provision of a comprehensive range of health services to the community. The development of regional satellite systems linking hospitals, nursing homes, home health agencies, rehabilitation facilities and outpatient facilities throughout Montana will encourage continuity of care.
5. Hospitals in Montana should offer the highest quality and most comprehensive and effective services possible at the most reasonable cost to the patient, in accordance with the attending physician's plan for care of the patient.
6. Effective and consistent quality assurance and peer review programs should be maintained and stressed in every hospital to ensure proper referral of the patient to a more specialized, or in some cases, a lesser level of care. Under the swing bed concept, hospital beds are not allocated to distinct departments. Instead, they are used by different types of patients as needed.

Intensive Care/Coronary Care Beds

1. For reviews involving critical care (ICU/CCU) beds, the following criteria are applicable:

— Intensive care units/coronary care units should be readily accessible to the emergency room in hospitals with fifty or more licensed beds.
— Intensive care beds/coronary care beds in hospitals of less than fifty licensed beds should be located in close proximity to the nurse's station.
— Arrangements should be made for direct transmission of electrocardiograms (ECGs) to consultants in other facilities if no local cardiologists are available for the care of coronary care patients.
— At a minimum, one registered professional nurse for every three critical care patients should be provided. Patient needs may dictate that one registered professional nurse is needed for every critical care patient. Specially oriented licensed practical nurses, working under close professional nursing supervision to perform assigned bedside duties, may be used to reduce this ratio.
— All nurses staffing critical care units should at least annually take appropriate continuing education and refresher courses in order to maintain their proficiency.
— A medical director or a committee of the medical staff assigned to a critical care unit should assume the responsibility for medical supervision, educational programming and patient treatment for emergent situations.

SUBAREA, HOSPITAL, & CITY	TOTAL OPERATING EXPENSES 1977	1978	1979	ADJUSTED EXPENSES PER INPATIENT DAY 1977	1978	1979	ADJUSTED EXPENSES PER ADMISSION 1977	1978	1979
NORTHWESTERN									
Kalispell Regional Kalispell, MT	5,462,034	6,071,162	6,875,066	176.85	213.24	234.25	820.09	971.91	1031.60
St. John's Lutheran Libby, MT	851,800	1,073,369	1,206,440	141.73	149.40	185.76	598.22	616.18	735.80
Missoula Community Missoula, MT	5,178,888	5,983,449	6,610,622	191.87	241.72	307.35	799.76	963.47	1127.61
Missoula General Missoula, MT	1,865,739	2,004,367	2,400,223	187.21	240.74	291.52	1149.37	1254.82	1348.95
St. Patrick Missoula, MT	9,798,844	10,394,388	12,101,029	194.42	220.80	237.67	1111.27	1219.91	1340.28
Clark Fork Valley Plains, MT	789,459	1,024,508	1,119,690	163.95	191.59	221.30	635.25	815.53	1116.00
St. Joseph Polson, MT	910,794	1,012,970	1,187,449	127.05	135.85	157.85	550.03	577.93	609.17
St. Luke Community Ronan, MT	508,615	614,904	794,760	110.85	120.39	152.09	537.78	589.84	671.41
Mission Valley St. Ignatius, MT	403,316	699,907	746,311	159.04	175.97	194.46	582.25	684.52	793.58
Mineral County Superior, MT	300,796	361,945	265,222	161.29	112.88	84.63	601.14	418.30	302.11
North Valley Whitefish, MT	1,432,771	1,576,778	1,651,256	140.32	147.84	164.64	605.80	692.03	716.50
Marcus Dailey Memorial Hamilton	1,178,899	1,396,976	1,534,760	111.26	125.77	142.35	493.95	542.24	596.77

Table A-1
Cost Statistics for Northwestern Hospitals

* includes long term care
** includes long term care and uses estimate of outpatient revenue

Source - Department of Health and Environmental Sciences

SUBAREA, HOSPITAL, & CITY	TOTAL OPERATING EXPENSES 1977	1978	1979	ADJUSTED EXPENSES PER INPATIENT DAY 1977	1978	1979	ADJUSTED EXPENSES PER ADMISSION 1977	1978	1979
NORTH CENTRAL									
Big Sandy Medical Center Big Sandy, MT	158,831	166,153	172,037	91.54	100.87	118.44	482.58	495.37	553.54
Liberty County Chester, MT	378,331	355,118	378,124	151.17	187.32	218.59	763.74	727.81	876.31
Teton Medical Center Choteau, MT	538,686	614,086	649,732	152.79	138.89	163.68	609.54	684.27	679.11
Pondera Medical Center Conrad, MT	1,377,945	1,685,423	1,804,389	130.38	142.50	198.27	640.76	766.81	976.38
Memorial Cut Bank, MT	845,056	1,005,853	1,007,699	151.30	174.98	207.54	634.50	845.19	886.76
Choteau County District Fort Benton, MT	369,187	346,819	361,233	130.10	171.34	136.71	824.86	762.83	803.74
Columbus Great Falls, MT	9,257,736	11,785,872	13,365,822	153.99	196.47	210.79	900.50	1194.94	1308.26
Montana Deaconess Great Falls, MT	10,086,504	11,761,166	12,613,584	152.19	184.77	228.62	854.21	1047.65	1266.17
Northern Montana Havre, MT	4,322,070	4,864,074	5,304,882	182.66	197.01	217.41	830.02	933.10	1032.97
Toole County Shelby, MT	656,429	761,555	865,695	243.85	252.79	297.32	886.07	956.46	1293.14
SOUTH CENTRAL									
Sweet Grass Community Big Timber, MT	171,022	218,716	221,879	98.19	120.75	194.75	659.98	569.27	751.69
Billings Deaconess Billings, MT	10,834,835	12,681,702	13,836,620	173.93	197.18	226.36	1229.73	1386.16	1555.48
St. Vincent Billings, MT	11,523,783	14,908,532	16,946,763	150.82	179.06	213.57	785.82	978.88	1115.72
Stillwater Community Columbus, MT	586,416	619,553	665,153	120.88	160.92	188.98	724.49	824.86	877.18
Wheatland Memorial Harlowton, MT	380,288	428,982	497,339	147.85	195.81	209.54	772.23	782.76	795.74
Big Horn County Memorial Hardin, MT	371,535	419,802	359,732*	125.96	134.14	95.76	477.57	519.34	385.15

Table A-2
Cost Statistics for North Central and South Central Hospitals

* includes long term care
** includes long term care and uses estimate of outpatient revenue

Source - Department of Health and Environmental Sciences

SERVICE, HOSPITAL, & CITY	TOTAL OPERATING EXPENSES 1977	1978	1979	ADJUSTED EXPENSES PER INPATIENT DAY 1977	1978	1979	ADJUSTED EXPENSES PER ADMISSION 1977	1978	1979
SOUTH CENTRAL (Continued)									
Central Montana Lewistown, MT	1,521,117	2,309,775	3,517,153	153.92	203.34	284.01	787.09	1056.33	1282.10
Carbon County Memorial Red Lodge, MT	434,688	515,294	554,672	95.25	106.47	123.39	464.20	528.36	613.75
SOUTHWESTERN									
Community Hospital Anaconda, MT	1,951,053	1,939,598	2,000,365	159.61	187.83	208.07	756.92	840.20	888.15
Bozeman Deaconess Bozeman, MT	3,498,747	3,870,341	4,194,220	159.61	178.13	189.66	756.92	734.46	797.53
St. James Community Butte, MT	7,044,933	8,240,285	9,768,619	154.69	176.57	215.57	890.49	1028.30	1235.71
Silver Bow General Butte, MT	4,279,554*	4,106,424	4,352,486	202.91*	165.10	176.05	1152.90*	1022.39	1119.65
Powell County Memorial Deer Lodge, MT	840,250	998,918	1,196,778	140.22	172.32	184.77	680.79	837.23	997.87
Barrett Memorial Dillon, MT	647,852	804,875	761,163	142.70	159.36	183.34	553.61	610.41	671.46
Madison Valley Ennis, MT	219,954	269,945	290,312	116.43	118.59	155.43	547.42	658.12	700.89
St. Peter's Community Helena, MT	6,650,160	7,064,555	7,909,052	161.84	182.95	204.41	953.17	1049.23	1125.69
Shodair Childrens Helena, MT	1,229,207	1,307,675	1,381,627	201.37	205.31	246.45	673.01	699.10	748.55
Livingston Memorial Livingston, MT	1,291,304	1,300,008	1,603,218	138.38	161.49	212.64	599.32	755.98	953.18
Granite County Memorial Philipsburg, MT	152,728	145,036	188,006	156.87	250.11	380.37	807.20	988.35	1450.81
Ruby Valley Sheridan	299,355	326,547	359,238	139.02	131.21	145.47	528.93	574.20	644.52
Mountainview Memorial White Sulphur Springs, MT	197,471*	202,957	262,492	196.42*	161.43	301.66	794.99*	656.92	1328.98

Table A-3
Cost Statistics for South Central and Southwestern Hospitals

* includes long term care
** includes long term care and uses estimate of outpatient revenue

Source - Department of Health and Environmental Sciences

SERVICE, HOSPITAL, & CITY	TOTAL OPERATING EXPENSES 1977	1978	1979	ADJUSTED EXPENSES PER INPATIENT DAY 1977	1978	1979	ADJUSTED EXPENSES PER ADMISSION 1977	1978	1979
EASTERN									
Fallon Memorial Baker, MT	275,905*	245,907	342,010	218.12*	121.69	207.22	849.43*	560.77	688.20
McCone County Circle, MT	320,668	296,068	348,095	87.62	85.75	121.06	421.66	466.59	591.07
Roosevelt Memorial Culbertson, MT	268,468	343,742	406,479	88.63	112.68	171.56	497.94	669.47	755.12
Dahl Memorial Ekalaka, MT	298,256*	217,453	211,421	506.50*	136.56	619.77	1934.54*	609.38	2195.76
Rosebud Community Forsyth, MT	776,486*	330,913	406,155	248.97**	159.74	219.92	1061.84**	593.89	904.67
Frances Mahon Deaconess Glasgow	1,201,315	1,565,145	1,963,503	152.47	175.38	227.57	745.01	914.78	1039.97
Glendive Community Glendive, MT	1,625,538	1,849,409	1,960,533	148.86*	169.39	227.59	836.96*	940.10	1151.78
Garfield County Jordon, MT	226,662*	86,245	170,180*	370.84*	187.54	110.33	1630.90*	733.18	376.53
Phillips County Malta, MT	478,184	533,071	497,258	58.34	82.51	82.82	465.56	582.82	572.91
Holy Rosary Miles City, MT	3,114,407	3,433,139	3,645,479	167.04	204.62	208.66	913.93	1118.62	1125.24
Sheridan Memorial Plentywood, MT	427,365	455,911	473,041	87.60	83.09	83.05	451.44	491.59	523.72
Poplar Community Poplar, MT	479,525	566,148	571,954	117.74	167.99	176.80	452.09	770.47	730.69
Richey Memorial Sidney, MT	293,194	357,955	371,354*	164.11	224.58	221.55*	755.40	917.32	1033.00*
Community Memorial Sidney, MT	1,866,331	2,489,976	2,625,323	145.09	185.43	242.68	678.90	1015.35	1173.45
Prairie Community Terry, MT	190,011*	205,985	211,765	383.77*	160.23	162.14	1075.34*	888.24	983.28
Trinity Wolf Point, MT	1,023,087	1,109,232	1,187,340	171.21	139.79	173.82	658.82	734.63	862.83

Table A-4
Cost Statistics for
Eastern Montana Hospitals

* includes long term care
** includes long term care and uses estimate of outpatient revenue

Source - Department of Health and Environmental Sciences

Hospital	County	Total Discharges of County Residents 1979	Percent Treated By Local Hospital 1979	Total Hospital Admission 1979	Percent Same County
St. John's Lutheran	Lincoln	1127	98%	1233	95%
Kalispell Regional	Flathead	4743	85%	5880	82%
North Valley	Flathead	1678	89%	1955	86%
Clark Fork Valley	Sanders	697	91%	910	90%
St. Joseph Hospital	Lake	1161	89%	1241	98%
St. Luke Community	Lake	849	94%	1030	99%
Mission Valley	Lake	644	87%	742	86%
Mineral County	Mineral	235	93%	305	84%
Missoula Community	Missoula	3798	72%	5288	71%
Missoula General	Missoula	962	67%	1536	69%
St. Patrick	Missoula	4748	63%	8162	62%
Marcus Daly Memorial	Ravalli	2037	88%	2204	93%

Table B-1 - Two Patient Origin Indicators
For Hospitals in Northwestern Montana

Source - Department of Health and Environmental Sciences

Hospital	County	Total Discharges of County Residents 1979	Percent Treated By Local Hospital 1979	Total Hospital Admission 1979	Percent Same County
Glacier County Memorial	Glacier	696	91%	825	88%
Indian Health Service	Glacier	N/A	N/A	N/A	N/A
Toole County Hospital	Toole	496	91%	561	88%
Pondera County Hospital	Pondera	1255	75%	1508	N/A
Teton Memorial Hospital	Teton	596	85%	752	78%
Montana Deaconess	Cascade	7537	75%	10329	76%
Columbus Hospital	Cascade	6325	73%	N/A	N/A
Choteau County District	Choteau	237	95%	257	92%
Big Sandy Medical Center	Choteau	204	94%	239	89%
Norhtern Montana	Hill	955	80%	4622	69%
Liberty County Hospital	Liberty	147	45%	337	55%
Fort Belknap	Blaine	N/A	N/A	N/A	N/A

Table B-2 - Two Patient Origin Indicators
For Hospitals in North Central Montana

Source - Department of Health and Environmental Sciences

Hospital	County	Total Discharges of County Residents 1979	Percent Treated By Local Hospital 1979	Total Hospital Admission 1979	Percent Same County
Barrett Memorial	Beaverhead	743	93%	874	89%
Ruby Valley Hospital	Madison	335	78%	476	73%
Madison Valley Huspital	Madison	271	74%	379	70%
Bozeman Deaconess	Gallatin	4016	81%	4975	79%
St. Peters	Lewis & Clark	4988	84%	5959	83%
Shodair Crippled Childrens	Lewis & Clark	1099	82%	1358	81%
Broadwater Hospital	Broadwater	311	93%	335	91%
Mountainview Memorial	Meagher	131	94%	143	90%
Granite County Memorial	Granite	105	98%	113	96%
Powell County Memorial	Powell	901	87%	1083	86%
St. James Community	Silver Bow	5282	78%	6925	74%
Silver Bow General	Silver Bow	2741	82%	3589	86%
Community Hospital of Anaconda	Deer Lodge	1653	95%	1732	92%
Livingston Memorial	Park	1276	93%	1502	91%

Table B-3 - Two Patient Origin Indicators
For Hospitals in Southwestern Montana

Source - Department of Health and Environmental Sciences

Hospital	County	Total Discharges of County Resident. 1979	Percent Treated By Local Hospital 1979	Total Hospital Admission 1979	Percent Same County
Central Montana Hospital	Fergus	2124	86%	2377	N/A
Wheatland Memorial	Wheatland	310	77%	400	74%
Roundup Memorial	Musselshell	N/A	N/A	128	91%
Stillwater Community	Stillwater	546	81%	709	73%
Sweetgrass Community	Sweetgrass	174	81%	214	92%
Carbon County Memorial	Carbon	781	96%	845	98%
Big Horn County Memorial	Big Horn	465	85%	821	78%
Crow Agency	Big Horn	N/A	N/A	N/A	N/A
Billings Deaconess	Yellowstone	4425	63%	7508	56%
St. Vincent	Yellowstone	10264	75%	13093	56%

Table B-4 - Two Patient Origin Indicators
For Hospitals in South Central Montana

Source - Department of Health and Environmental Sciences

Hospital	County	Total Discharges of County Residents 1979	Percent Treated By Local Hospital 1979	Total Hospital Admissions 1979	Percent Same County
Malta Hospital	Phillips	741	96%	815	94%
Frances Mahon Deaconess	Valley	1428	86%	1737	-
Daniels Memorial	Daniels	306	89%	315	82%
Sheridan Memorial	Sheridan	764	89%	896	83%
Roosevelt Memorial	Roosevelt	439	91%	513	85%
Trinity Hospital	Roosevelt	1030	84%	1244	74%
Poplar Community	Roosevelt	616	96%	663	93%
Garfield County Hospital	Garfield	199	94%	219	92%
McCone County Hospital	McCone	427	77%	553	76%
Community Memorial	Richland	960	91%	2066	92%
Glendive Community	Dawson	1333	83%	1566	76%
Rosebud Community	Rosebud	263	78%	1411	-
Fallon Memorial	Fallon	266	90%	327	-
Dahl Memorial	Carter	75	97%	70	84%
Holy Rosary	Custer	1840	66%	2919	61%
Prairie Community	Prairie	155	93%	171	91%

Table B-5 - Two Patient Origin Indicators
For Hospitals in Eastern Montana

Source - Department of Health and Environmental Sciences

4.2
ACUTE CARE PSYCHIATRIC UNITS

GOAL

To foster the rational development of a number of regional, acute care psychiatric units in Montana hospitals to provide short term psychiatric care. As a planning goal, bed need in this plan is based on a historical use rate of 66.3 patient days per 1,000 population.

OBJECTIVE

By 1985, establish short term psychiatric units in Kalispell, Helena, Havre and Bozeman if they can be shown to be financially feasible, and to serve a sufficient population to justify a minimum of ten beds without jeopardizing existing services in the affected MHSA subarea.

LONG RANGE ACTIONS:

1. By 1981, support legislation requiring all health insurance policies sold in Montana to include coverage, as an option, of psychiatric services.
2. By 1982, emphasize the importance of linkages, coordination and cooperation between acute psychiatric units and local community mental health services. Cooperation between local inpatient and outpatient programs is vital to ensure complete coverage.

1.0 BACKGROUND

1.1 SERVICE DEFINITION

This plan component is limited to establishing guidelines for the future development of psychiatric units in selected hospitals. Although most hospitals have the capability to treat psychiatric patients when necessary, few hospitals have the staffing to maintain distinct units. These hospitals, in turn, serve as a referral source for the other hospitals in the area.

The majority of patients admitted to psychiatric units evidence severe emotional disturbances and appear to be:[1]

— Very depressed/often suicidal
— Acutely psychotic
— Have some form of severe organic brain syndrome
— Have severe personality and behavioral disorders

1.2 SERVICES AND SETTINGS

Although this component does not address the services delivered by local community mental health centers, they are another community resource with responsibilities in this area. The importance of good linkages between the acute psychiatric units is stressed so a full range of services can be provided to the patient.

1.3 TRENDS

The mental health delivery system in the United States has undergone rapid and major revision in recent years. The trend has been toward the provision of services to patients in their own home communities. Underlying this trend is the principle that removing a person from "normal home and community makes resolution of problems more difficult than maintenance of the ill person in the home and community."[2]

The utilization of local services has been steadily increasing as state and psychiatric hospitals have decreased in size, or in some areas, closed completely. Since 1963, with the passage of the Community Mental Health Centers Act, the resident populations of these hospitals have decreased nationwide by 45 percent.[3] In Montana, resident populations in these facilities have decreased from 2,000 patients in the 1950's to approximately 300 patients in 1975.

In this transition, it has been necessary for the large community hospitals to develop special units to care for acutely ill psychiatric patients for short periods.

2.0 CURRENT SITUATION

2.1 AVAILABILITY

There are presently four hospitals in Montana that have psychiatric units, are staffed by professional personnel and utilize therapeutic treatment modalities. The units are Billings Deaconess Hospital, Montana Deaconess Medical Center in Great Falls, St. Patrick Hospital in Missoula and Silver Bow General Hospital in Butte. The location of these facilities and their general catchment areas are shown in Figure 1. Other hospitals in the state have security rooms for psychiatric patients or will use a general bed or room for such patients.

There is no formal acute psychiatric hospital unit in Eastern Montana. As a result, a unique method of providing inpatient psychiatric care has been developed. Persons in need of inpatient treatment for acute psychiatric illnesses are hospitalized in community hospitals, and treatment plans are developed through the collaboration of local physicians, hospital personnel and mental health professionals. When situations arise where patients are in need of a more intense, structured program, appropriate referrals are made. This method has proven effective as evidenced by the increased numbers of local hospitalizations and decreased commitments to Warm Springs State Hospital.

The number of beds, total admissions, length of stay and occupancy rates of the four hospitals with psychiatric units are indicated in Table 1. In Montana, the average length of stay for psychiatric unit patients is 9.0 days as compared to the national average of 11 days.[4]

2.2 ACCESSIBILITY

Accessibility barriers to acute psychiatric care in Montana result from an apparent absence of psychiatrists practicing in the rural areas and reimbursement problems encountered by health care providers. Many health insurance policies do not include comprehensive mental health coverage. Assuming acute care psychiatric units were developed in Kalispell, Havre, Helena, and Bozeman, accessibility to this care would be significantly enhanced for all but one of the subareas, Eastern.

2.3 COST

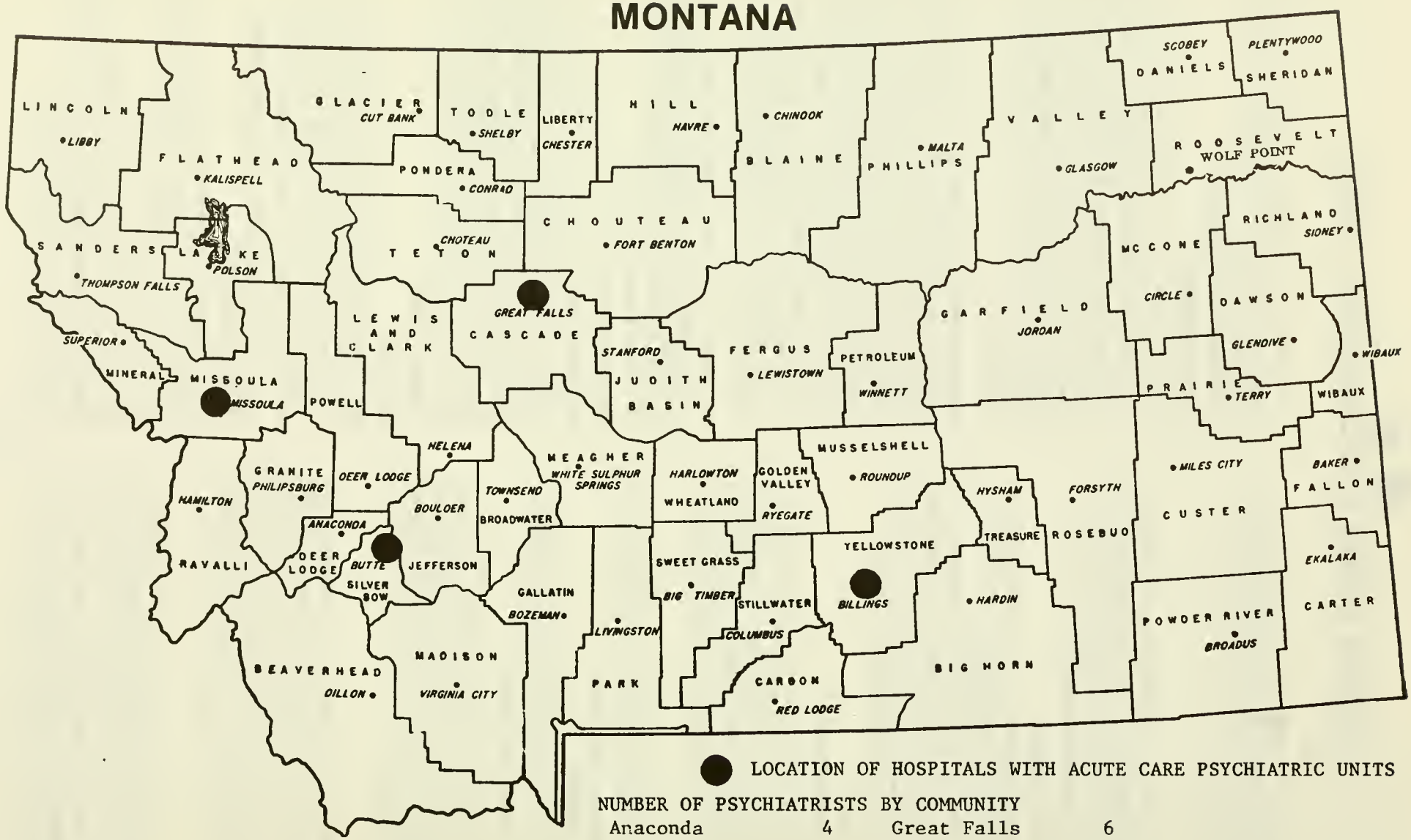
Based upon the past experience of existing units in Montana, units of less than 10 beds cannot support themselves. It is estimated that a 15-bed unit must experience an annual occupancy rate of 80 percent and serve a population of at least 150,000 persons to remain financially viable.

3.0 FUTURE RESOURCE REQUIREMENTS

3.1 AVAILABILITY

Table 2 presents the estimated bed need for acute care psychiatric units in a number of selected hospitals across Montana. Each of the hospitals has approximately 100 beds and serves as a regional referral center.

Bed need is estimated using a model based on a 99.9 percent chance that an unoccupied bed will be available when needed. This procedure assumes that a 10-bed unit would have an annual occupancy rate of 40 percent — a utilization level which may not be self-supporting.



● LOCATION OF HOSPITALS WITH ACUTE CARE PSYCHIATRIC UNITS

NUMBER OF PSYCHIATRISTS BY COMMUNITY

Anaconda	4	Great Falls	6
Billings	7	Havre	2
Bozeman	1	Helena	2
Butte	2	Kalispell	3
Glasgow	1	Libby	1
		Missoula	7

FIGURE 1: Location of Acute Care Psychiatric Units in Montana

Hospital	Number Beds	Total Admissions	Total Inpatient Days	Average Length of Stay (Days)	Occupancy Rate Percent
Montana Deaconess Medical Center-Great Falls	28	679	5,399	8.0	52.8
St. Patrick Hospital-Missoula	17	857[1]	4,536[1]	5.3	73.1
Billings Deaconess Hospital-Billings	21	518	6,603	12.7	86.1
Silver Bow General Hospital-Butte	18	243	4,487	18.5	68.3
TOTAL	84	2,297	21,025	9.2	68.6

1) Includes alcohol and drug detox patients

TABLE 1 - Admission and Utilization Data For Acute Care Psychiatric Units in Montana

SOURCE: Unpublished data from the 1979 Hospital and Related Facilities Annual Report, Department of Health and Environmental Sciences, State of Montana.

Based on these estimates, it appears that Kalispell, Havre, Helena and Bozeman may justify the development of acute care psychiatric units in their hospitals.

With the exception of Billings and Missoula, each of the cities currently having these units appears to be adequately served. With the rapid growth expected in these two communities, expansion of the current services may be justified.

3.2 ACCESSIBILITY

In 1975, the Governor's Advisory Council on Mental Health recommended that a selected number of communities consider establishing acute psychiatric units. The intent of this recommendation was recognition of the fact that a minimum number of geographically dispersed units was needed to provide complete coverage in the state. The MHSA task force on acute care psychiatric units agreed with this concept with the following qualifications:

1) Each unit must be under the direction of a psychiatrist.
2) Units must be large enough to be self-supporting.
3) Services should not be duplicated in a community.

The reasoning behind the first criterion is that these units are medical facilities and patients can only be admitted by a physician. Consequently, it was felt that these units should be developed only after the hospital has placed a psychiatrist on its medical staff. (A psychiatrist can practice without a unit, treating patients on an out patient basis and using general hospital beds as needed; but a unit cannot function without a psychiatrist.) Thus, the development of these units is heavily dependent on the recruitment of psychiatrists to Montana. The possible use of National Health Service Corps (NHSC) psychiatrists is addressed in another component.

3.3 COST

To date, acute care psychiatric units have not been duplicated in any community in Montana. It appears that economies of scale may be realized in these units (the larger the service, the lower the unit cost). Should more than one hospital offer this service, the average cost would be substantially higher.

4.0 GENERAL ANALYSIS

4.1 ALTERNATIVES AND ISSUES

One of the problems in developing a plan for psychiatric units in Montana is the lack of psychiatrists outside the metropolitan areas of the state. Figure 1 shows the location of practicing psychiatrists currently in the state. It is emphasized that psychiatric units cannot function without a psychiatrist on staff.

A second problem in Montana is that the provision of psychiatric services is often quite costly to the hospital due to the fact that mental health care insurance is not covered by third party payors. Thus, decisions about treatment and

	1985 County Population	Projected Average Daily Census[1]	Estimated 1985 Bed Need	Number Beds Currently Licensed	Deficit (Surplus)
Northwestern					
Missoula (Missoula)	78,171	14.2	26	17	9
Kalispell (Flathead)	56,402	10.2	20	-	20
North Central					
Great Falls. (Cascade)	88,112	16.0	28	28	0
Havre (Hill)	19,641	3.6	9	-	9
Southwestern					
Butte (Silver Bow)	44,457	8.1	17	18	(1)
Helena (Lewis & Clark)	46,931	8.5	17	-	17
Bozeman (Gallatin)	44,058	8.0	16	-	16
South Central					
Billings (Yellowstone)	126,106	22.9	37	21	16
Eastern					
Miles City (Custer)	14,642	2.7	8	-	8
Glendive (Dawson)	13,067	2.4	7	-	7
Sidney (Richland)	12,093	2.2	7	-	7
Glasgow (Valley)	16,325	3.0	8	-	8

1) Based upon an average use rate of 66.3 psychiatric inpatient days per 1,000 population in the Great Falls, Missoula, Butte and Billings Psychiatric Units in 1977, 1978, and 1979.

2) Based on the probability that an unoccupied psychiatric bed will be available 99.9% of the time, using the formula, Beds Needed = ADC + $3.0\sqrt{ADC}$

TABLE 2
Estimated Bed Need for Acute Care Psychiatric Units in Selected Montana Communities

hospital stay have to be made without knowledge of whether the patient will be accepted for insurance to cover the hospital expenses. Only crude estimates of bed need can be developed at this time. The estimates assume that each unit will experience a patient utilization rate (psychiatric patient days per 1,000 population) which is the same as the average rate the four existing units experienced in 1977, 1978, and 1979. The catchment areas of individual units are not defined; therefore, the local county population is assumed to be the primary catchment area.

A factor which cannot be addressed at this time is the impact of group homes and other less restrictive living arrangements for the mentally ill. The availability of these services locally should lessen the need for chronic care psychiatric units so they can be used only for the most acutely ill. The presence of these group homes may indicate the need for acute backup services furnished by psychiatric units.

Because of the above assumptions, individual hospitals wishing to develop one of these units will be able to more precisely estimate the local need for this service.

REFERENCES

1. Leona L. Bachrach, Ph.D., Psychiatrist Bed Needs: An Analytical Review, U.S. Department of Health Education and Welfare, Publication No. (ADM) 75-205, 1975.
2. Ibid.
3. Ibid.
4. Daniel S. Levine, The Cost of Mental Illness, Final Report, September. 1974, prepared for the National Institute of Mental Health, DHEW, page 20.
5. Standards for Psychiatric Facilities, The American Psychiatric Association, Washington, D.C., 1967.

APPENDIX I

RECOMMENDED REVIEW CRITERIA: ACUTE CARE PSYCHIATRIC UNITS

1. Each hospital desiring to establish such a unit should have at least one psychiatrist on its staff.
2. Each unit should be able to be self-supporting within three years after initiation of services.
3. Each unit should contain at least 10 beds.
4. Each unit should be staffed with nurses qualified or experienced in psychiatric care and should be able to comply with the Standards for Psychiatric Facilities published by the American Psychiatric Association.
5. Units should not be duplicated in any community.

4.3
LONG TERM CARE

GOALS:

1. Long term care beds should be readily and locally available to residents needing this type of care to avoid any excessive travel time to a facility and to avoid any psychological adjustments necessary by residents who otherwise would have to live far away from home. Future facilities should provide comprehensive care to the long term care patient and be designed to maintain at least a 90 percent annual average occupancy rate.
2. The appropriate placement of long term care residents in nursing homes is to be encouraged.

OBJECTIVES:

1. By 1985, the following counties appear to need additional long term care beds:
   — Yellowstone
   — Lewis & Clark
   — Custer
   — Hill
   — Flathead
   However, no new facility construction should be approved until the applicant demonstrates that alternative modes for care have been fully investigated.

LONG RANGE ACTIONS:

1. By 1983 the various sources of federal funds to assist in the financing of retirement homes, group homes and other less restrictive living arrangements should be identified. Programs providing seed money for the establishment of adult foster care programs, geriatric day care centers and home health care agencies should be identified and solicited. In addition, the MHSA should work toward a more stable reimbursement framework for these alternatives.
2. By 1983, efforts should be coordinated between the MHSA and other groups affiliated with the aged to identify the specific health problems of the elderly and the programs that could be implemented to alleviate these problems.

1.0 BACKGROUND

1.1 SERVICE DEFINITION

Long-term health care refers to the professional or personal services required by an individual on a recurring or continuous basis because of chronic or permanent physical or mental impairment. Long-term care involves the provision of services, physical, psychological, spirtitual, social, and economic to help people maintain and eventually regain, if possible, and optimal level of functioning. This component will address those long-term care beds medically necessary for health maintenance throughout life as well as care during acute protracted illness and disability. Defined in this way, long-term care facilities provide inpatient care for the elderly, the convalescing, and chronically diseased patients who require professional nursing care and related medical services.

By addressing only those "medically necessary" beds, the MHSA is assuming that the most appropriate model for long-term care is the medical model. This does not appear to be entirely true. The state has recognized that the residents of these facilities need psycho-social services as well as medical services. Consequently, there are a number of regulations which require long-term care facilities to provide these services. Because the psycho-social needs are so difficult to determine and measure, the medical model is used.

Currently, there are four levels of long-term care nursing beds licensed in Montana, skilled, intermediate A and B, and intermediate care for the mentally retarded (ICF/MR). Skilled nursing beds offer continuous skilled nursing care twenty-four hours per day. Intermediate A and B care beds only provide for limited skilled nursing services in addition to personal care. Intermediate B beds have been phased out in Montana and no new intermediate B beds are being licensed. For intermediate care for the mentally retarded, group homes could be licensed to provide this service.

Concise definitions for distinguishing between skilled and intermediate care beds are not available. The Montana Foundation for Medical Care uses Medicare definitions to classify residents of long-term care facilities. In addressing the future need for long-term care beds in Montana, these guidelines do not make separate estimates for skilled and intermediate beds. To be compatible with licensing requirements, it is suggested that facilities allocate their beds in initial applications and base the analysis of financial feasibility on this allocation. After the review is conducted and the license is awarded, bed allocation may not be changed. Any changes in the allocation of beds will continue to be subject to review under Montana's Certificate of Need law.

The population group primarily served by long-term care facilities in Montana is comprised of individuals 65 years of age or older. Patient origin studies conducted by the Comprehensive Health Planning (CHP) agencies in 1974 indicate that the average age of nursing home residents was between 79 and 81 years old. The average length of stay for nursing home patients was reported to be between 1.9 and 2.8 years. The number of persons aged 65 years and older is projected to increase 15 percent from 1975 to 1985 as compared to only a 12 percent increase for the entire population of Montana for this period. The Department of Community Affairs estimates that there were approximately 75,586 persons in 1975 aged 65 years and older. By 1985, the number of elderly is expected to reach 86,645.

According to a study conducted for the Department of Health and Environmental Sciences by a Colorado based consulting firm, long-term care placements in Montana appear to be justified. Eighty-two percent of the Medicaid recipients residing in long-term care facilities were found to need institutionalization.

1.2 SERVICES AND SETTINGS

Long-term care facilities operated by state and federal governments are not addressed in this component. These facilities are not subject to the same regulations, have restricted admission policies, and do not serve solely the local communities in which they are located. Included are the Montana Veterans' Home in Columbia Falls, the Montana Center for the Aged in Lewistown, the Eastmont Human Services Center in Glendive, and the Veterans Administration Hospitals in Miles City and Helena.

The majority of long-term care facilities in Montana are operated by proprietary (for profit) organizations. However, there are a number of nursing homes, around 30 percent, which are operated in conjunction with hospitals. Most of these are small facilities with an average long-term bed complement of 38. Combination facilities appear to be one viable method of delivering both acute and long-term care services in rural areas.

1.3 TRENDS

In recent years, many small hospitals have developed [illegible]

bination facilities. In this configuration, the hospital and long-term care facility are run separately, but have a common administrator and share some support services such as dietary and laundry. Proposed Federal Amendments to the Social Security Act, if passed, will allow usage of the swing bed concept in which long-term care and acute care beds may be used interchangeably as needed. At the present time, Medicare and Medicaid reimbursement policies require that these facilities be operated separately. In sparsely populated rural areas, it appears that combination facilities are a reasonable way to economically provide both acute and long-term care services. It also appears that future dependence on this concept might increase the costs of long-term care.

The hospital swing bed concept is basically oriented to providing temporary nursing home bed facilities in a local, rural community until a local nursing home bed is available; and thus avoid admission to a nursing home in a distant urban community. While there are certain meritorious qualities to this program, it is not an alternative to nursing home care.

2.0 CURRENT SITUATION

2.1 AVAILABILITY

In 1973, the United States had 51.9 long-term care beds per 1,000 persons aged 65 years and older. In Montana, there were 56.0 long-term care beds per 1,000 elderly.[1] By 1976, this ratio had increased to 67.4 beds per 1,000 elderly. In 1978, there were 76.3 beds per 1,000 elderly in Montana, in 1979, 71.3 beds per 1,000 elderly, and in 1980, 73.1 beds per 1,000 elderly.

Although there are no national standards for the number of long-term care beds needed to serve a population of a given size, a number of states have specified target ratios. Texas, for example, is using 80 beds per 1,000 elderly population, while Massachusetts is using 63.8 beds per 1,000 elderly. Massachusetts has established 25.8 boarding home beds per 1,000 elderly as well.[2,3]

Tables 1 through 5 show 1979 utilization statistics for each facility by subarea. Because little construction has taken place in the last two years, it appears that almost all facilities are continually full.

The impact of the Professional Standards Review Organization's (PSRO) utilization review is evidenced in the proportion of patients who are classified as skilled nursing patients on the last day of the survey. In previous years a majority of patients were "skilled", now the proportion is between 20 and 40 percent.

2.2 ACCESSIBILITY

The geographical distribution of long-term care facilities is illustrated in Figure 1. Of the 58 cities and towns with populations of 1,000 or more, 48 have nursing homes. In addition, there are 15 towns with populations of less than 1,000 which also have a long-term care facility.

2.3 COST

Figures 2 and 3 show the total operating costs of community long-term care facilities in Montana for the years 1975-1979. Total costs in this period increased 148 percent from $21.2 million to $52.5 million. Similarly, the cost per patient day increased 60 percent (from $17.60 in 1975 to $28.15 in 1979.)

The average size of nursing homes in Montana is relatively small, 63 beds. Ries and Christenson have pointed out that larger facilities would be more economical to operate in Montana.[4] For example, they have indicated that the most economical size for long-term care facilities in Montana would be 122 beds. On the other hand, geography and the small population densities characteristic to Montana dictate that small facilities be built if they are to be accessible.

County	Facility Name	City	Licensed Beds	Number Admissions	Patient Days	Average Occupancy Rate %	Percent Skilled Pstients
Flathead	Bigfork Convalescent Center	Bigfork	83	99	26,113	86.2	33.3
	Flathead County N.H.	Kalispell	66	34	50,909	92.3	31.3
	Immanuel Lutheran	Kalispell	140	38	21,332	99.6	26.8
	Colonial Manor	Whitefish	60	--	--	--	--
	North Valley Hospital	Whitefish	56	126	19,099	93.4	69.1
Lake	St. Joseph Convalescent	Polson	112	104	37,407	91.5	11.1
	Happy Acres	Ronan	10	1	3,569	97.8	-0-
	Westside Rest Home	Ronan	23	10	7,193	85.7	-0-
	St. Luke Community	Ronan	40	103	8,856	60.7	-0-
Lincoln	Libby Convalescent	Libby	63	65	21,887	95.2	23.6
	Mountainview Manor	Eureka	40	24	7,995	54.8	5.3
Mineral	Mineral County	Superior	20	21	7,147	97.9	21.1
Missoula	Community Nursing Home	Missoula	62	63	21,054	91.6	5.2
	Hillside Manor	Missoula	107	102	33,297	85.3	100.0
	Royal Manor	Missoula	51	34	17,049	91.6	-0-
	Wayside Nursing Home	Missoula	44	69	14,660	91.3	26.8
Ravalli	Valley View Estates	Hamilton	98	68	34,774	97.2	14.6
	North Valley	Stevensville	57	31	20,295	97.5	10.7
Sanders	Hot Springs Convalescent	Hot Springs	72	53	20,798	79.1	34.4
	Clark Fork Valley	Plains	12	9	4,151	94.8	50.0
SUBAREA TOTAL			1216[1]	1054	399,811	90.1	31.9
		1980 = 1294					

TABLE 1

1979 Utilization Statistics for Long Term Care Facilities in Northwestern Montana

[1] 1979 figure, 1980 licensed beds total 1294, Missoula Community Nursing Home licensed for 78 new beds for total bed complement of 140.

County	Facility Name	City	Licensed Beds	Number Admissions	Patient Days	Average Occupancy Rate %	Percent Skilled Patients
Blaine	Sweet Memorial	Chinook	40	19	14,261	97.7	7.5
	Harlem Rest Home	Harlem	60	22	18,342	83.8	-0-
Cascade	Cascade Co. Convalescent	Great Falls	232	183	82,993	98.0	15.2
	Deaconess	Great Falls	90	120	31,067	94.6	100.0
	McAuley Nursing Home	Great Falls	42[1]	20	14,928	97.4	-0-
	Park Place	Great Falls	165	244	52,715	87.5	-0-
Choteau	Sande Convalescent	Big Sandy	29	36	10,147	95.9	-0-
	Choteau Co. District Hosp.	Fort Benton	22	19	7,301	90.9	100.0
Glacier	Memorial	Cutbank	39	36	13,053	91.7	-0-
	Blackfeet	Browning	49	19	12,381	69.2	-0-
Hill	Hi-Line[2]	Havre	18[2]	--	--	--	--
	Lutheran Home	Havre	102	67	34,785	93.4	-0-
Liberty	Liberty County	Chester	40	39	13,295	91.0	36.1
Pondera	Pondera Pioneer Nursing Home	Conrad	63	83	22,618	98.4	9.5
Teton	Teton Nursing Home	Choteau	41	17	13,279	88.7	86.8
	Teton Medical Center	Choteau	24	45	6,892	78.7	15.8
Toole	Toole County	Shelby	32	35	11,445	98.0	6.3
SUBAREA TOTAL			1,070 1980 = 1,108	1,004	359,952	92.3	12.6

[1] Certificate of Need Issued in August, 1980 for an additional 38 beds, for a total bed complement of 80 beds.

[2] Closed 1979.

TABLE 2

1979 Utilization Statistics for Long
Term Care Facilities in North Central Montana

County	Facility	City	Licensed Beds	Number Admissions	Patient Days	Average Occupancy Rate %	Percent Skilled Patients
Beaverhead	Parkview Acres	Dillon	108	108	24,219	61.4	31.7
Broadwater	Broadwater Co.	Townsend	18	21	6,430	97.9	-0-
Deer Lodge	Community of Anaconda	Anaconda	68	65	23,937	96.4	-0-
Gallatin	Bozeman Convalescent	Bozeman	103	86	28,612	76.1	50.0
	Bozeman Deaconess	Bozeman	60	34	21,427	97.8	50.0
	Gallatin Co.	Bozeman	56	49	19,853	97.1	11.5
	Hillcrest Health Center	Bozeman	8	34	2,921	100.0	-0-
Granite	Granite Co. Memorial[1]	Philipsburg[1]	13	--	--	--	--
Jefferson	Hillbrook	Clancy	67	58	23,943	97.9	[illegible]
Lewis & Clark	Cooney Convalescent	Helena	60	133	19,917	90.9	[illegible]
	Helena N.H. & Health Facility	Helena	63	58	21,790	94.8	[illegible]
	Parkside Manor	Helena	52	44	18,467	97.3	[illegible]
	Western Care	Helena	108	64	37,595	95.4	[illegible]
Madison	Madison Co.	Sheridan	39	16	13,549	92.8	[illegible]
	Madison Co.	Ennis	40	--	7,361	--	-0-
Meagher	Mountainview Memorial	White Sulpher	31	40	10,757	95.1	[illegible]
Park	Livingston Convalescent	Livingston	125	116	37,763	82.8	[illegible]
Powell	Colonial Manor	Deer Lodge	60	49	21,560	98.4	[illegible]
Silver Bow	Butte Park Royal	Butte	200	211	67,384	92.3	[illegible]
	Crest	Butte	102	136	34,306	91.3	[illegible]
	Silver Bow General	Butte	[illegible]	70	35,962	98.5	[illegible]
SUBAREA TOTAL			1482	1392	467,778	87.2[2]	[illegible]

TABLE 3

1979 Utilization Statistics for Long Term Care
Facilities in Southwestern Montana

[1] Opened December 1979.

[2] Excludes 15 beds at Granite County Memorial.

County	Facility Name	City	Licensed Beds	Number Admissions	Patient Days	Average Occupancy Rate %	Percent Skilled Patients
Big Horn	Big Horn County Memorial[1]	Hardin	34	3	2,862	23.1	6.3
	Mountain View Rest Haven[1]	Hardin	21	8	6,846	89.3	--
Carbon	Carbon Co. Health Care Center	Red Lodge	80	104	24,019	82.3	13.6
	Carbon Co. Memorial N.H.	Red Lodge	24	15	7,560	86.3	100.0
Fergus	Central MT Hospital	Lewistown	70	108	24,866	97.3	0.0
	Valle Vista Manor	Lewistown	95	102	33,228	95.8	12.5
Musselshell	Roundup Memorial	Roundup	16	6	5,800	99.3	50.0
Stillwater	Stillwater Convaleacent	Columbus	81	43	28,352	95.9	10.8
Sweet Grass	Pioneer Nursing Home	Big Timber	48	18	16,260	98.5	25.5
Wheatland	Wheatland Memorial	Harlowton	33	24	11,813	98.1	100.0
Yellowstone	Glendeen N.H.	Billings	36	36	12,915	98.3	0.0
	St. John's Lutheran	Billings	176	98	62,305	97.0	48.3
	Valley Nursing Home	Billings	100	104	29,601	81.1	40.0
	Western Manor	Billings	158	212	56,461	97.9	7.6
	Yellowstone County	Billings	58	60	20,746	98.0	12.3
	Laurel N.H.	Laurel	29	11	10,134	95.7	0.0
SUBAREA TOTAL			1059	952	354,768	91.8	24.2

TABLE 4

1979 Utilization Statistics for
Long-Term Care Facilities in South Central Montana

[1]Certificate of Need Issued to Replace Mountain View Rest Haven with a free-standing 36-bed facility.

County	Facility Name	City	Licensed Beds	Number Admissions	Patient Days	Average Occupancy Rate %	Percent Skilled Patients
Carter	Dahl Memorial	Ekalaka	21	20	6,333	82.6	100.0
Custer	Custer Co. Rest Home	Miles City	121	76	42,743	96.8	6.7
	Friendship Villa	Miles City	67	57	22,595	92.4	9.2
Daniels	Daniels Memorial[1]	Scobey	55	26	7,501	37.4	2.5
Dawson	Glendive Community	Glendive	75	35	25,688	93.8	32.3
Fallon	Fallon Memorial	Baker	32	29	9,363	80.2	30.8
Garfield	Garfield Co. Home	Jordan	12	7	2,030	46.3	28.6
McCone	McCone Co.	Circle	40	21	6,261	42.9	30.0
Phillips	Malta N.H.[2]	Malta	35	11	11,880	54.2	0.0
Powder River	Powder River N.H.	Broadus	40	48	9,073	62.1	0.0
Prairie	Prairie Community	Terry	14	7	4,995	97.7	0.0
Richland	Richland Homes	Sidney	85	30	--	--	7.7
Roosevelt	Community Hospital	Poplar	22	25	6,693	83.3	16.7
	Faith Lutheran	Wolf Point	60	21	20,553	93.8	0.0
	Roosevelt Memorial	Culbertson	32	42	6,891	59.0	0.0
Rosebud	Rosebud Community	Forsyth	47	41	15,275	89.0	12.8
Sheridan	Sheridan Memorial	Plentywood	65	28	13,634	57.5	75.7
Valley	Valley View	Glasgow	92	27	32,006	95.3	17.4
	Frances Mahon Deaconess	Glasgow	6	49	629	28.7	100.0
Wibaux	Wibaux Co. N.H.	Wibaux	40	52	12,504	85.6	9.7
SUBAREA TOTAL			961	652	283,387	80.8	25.3

[1] Six months data
[2] Malta Nursing Home closed 1979, Phillips Good Samaritan opened with 60 licensed beds.

1980 = 986

TABLE 5

1979 Utilization Statistics for Long-Term Care Facilities in Eastern Montana

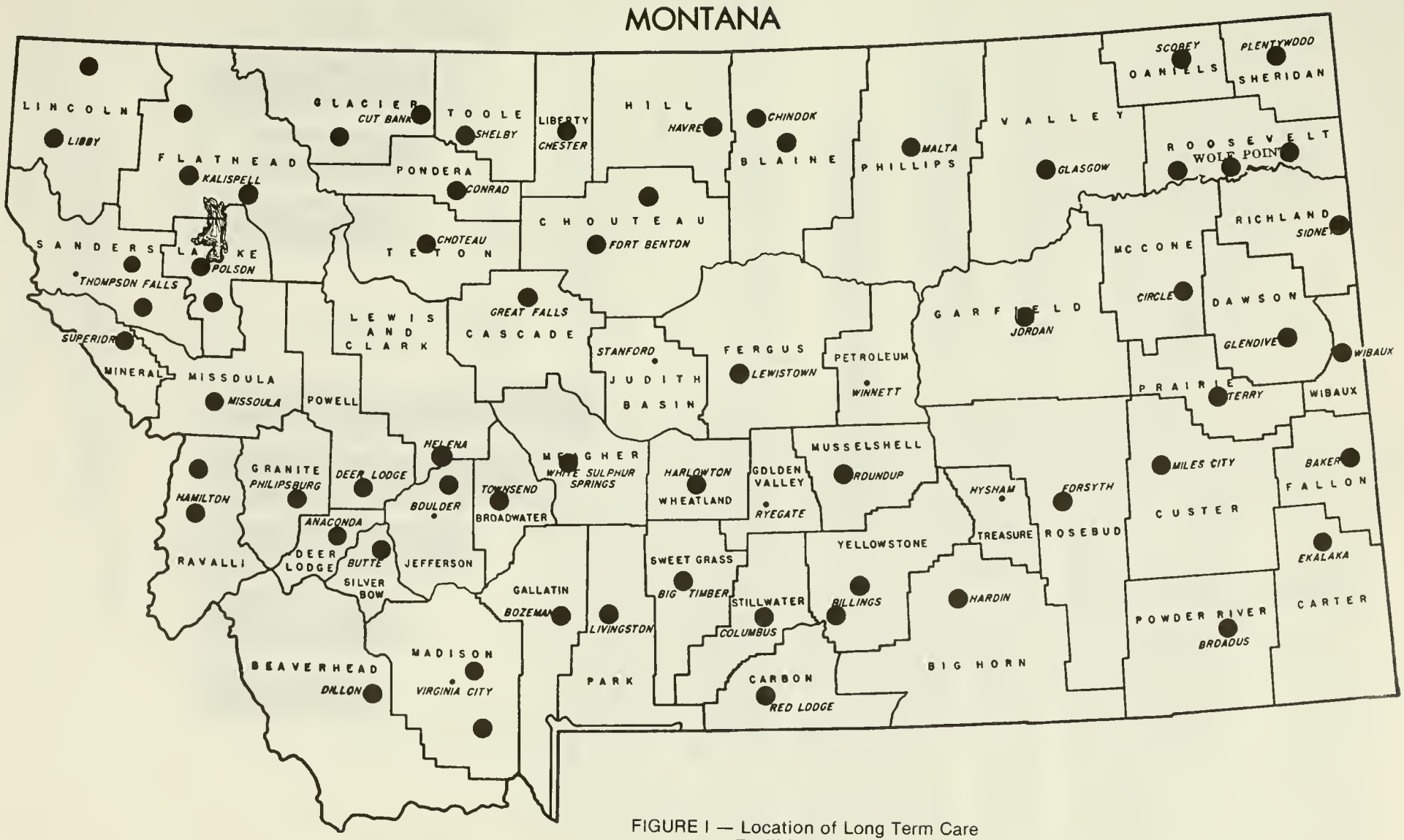


FIGURE I — Location of Long Term Care Facilities in Montana

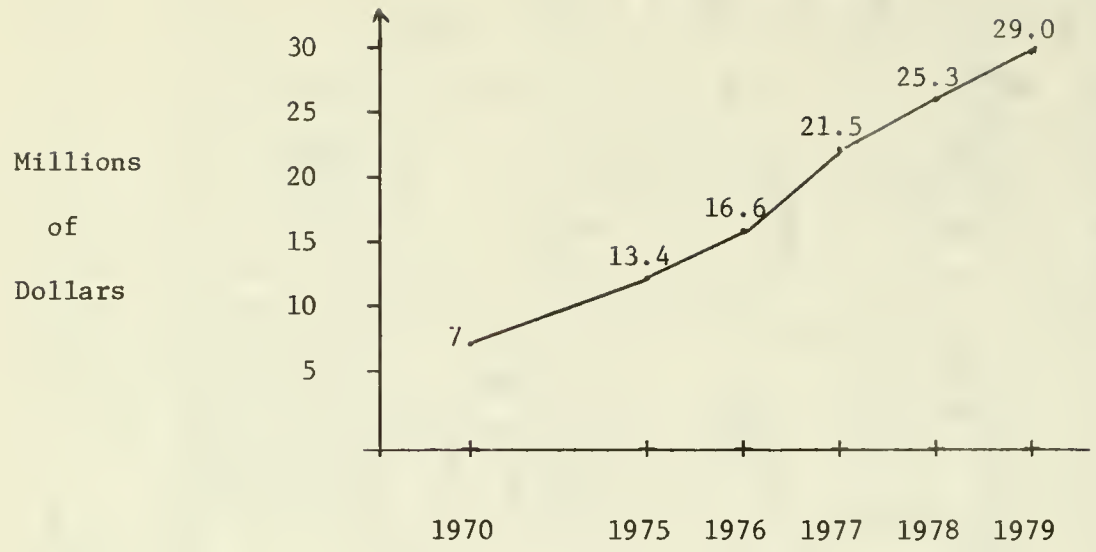


FIGURE 2 — Montana Medicaid's Annual Expenditures for Long Term Care Services for Selected Years

Source: Estimated from Monthly Statistical Tables prepared by the Bureau of Statistics & Research Department of Social and Rehabilitation Services, State of Montana.

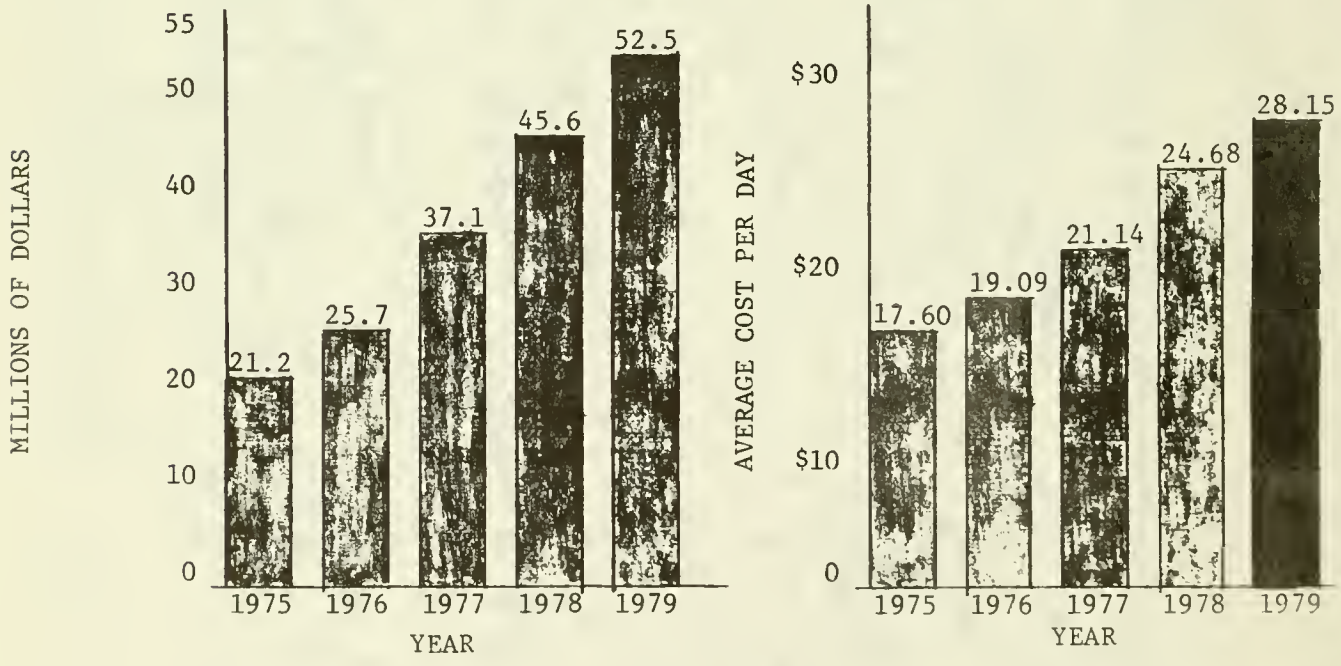


FIGURE 3 — Total Operating Expenses and the Average Cost Per Day of The Nursing Home Industry

3.0 FUTURE RESOURCE REQUIREMENTS

3.1 AVAILABILITY

In estimating the future need for long-term care facilities in Montana, the Hill-Burton model based on past utilization of existing facilities and population growth in the immediate county is used. It assumes the primary service area for a long-term care facility is the county in which the facility is located. This assumption is supported by patient origin studies conducted by the Comprehensive Health Planning Agencies in 1974. These studies demonstrated that a majority of the facilities served the local communities in which they were located. Recent data shows that this practice is continuing today. Over 80 percent of the long-term care admissions to Montana nursing homes during 1979 originated from the county where the facility is located.

Population estimates and projections used in applying the model are taken from those prepared by the Department of Community Affairs. In all cases, the estimates are for those persons aged 65 and older.

The estimated number of long-term care beds needed in 1985 in each county (service area) and subarea are shown in Tables 6 through 10. The Hill-Burton Formula used to make these estimates is expressed by the following formula:

$$\text{Beds needed} = \frac{PD \times Pop\ (85)}{Pop\ (80) \times 365 \times 0.90}$$

where

PD = average number of patient days observed in 1977, 1978, and 1979

Pop (80) = estimated 1980 population who are 65 and over for the service area.

Pop (85) = estimated 1985 population who are 65 and over for the service area.

The factor 0.90 corresponds to a desired overall occupancy rate. It appears that 90 percent occupancy rate is both feasible and desirable. Facilities continually operating at less than this level lose administrative flexibility and have difficulties remaining solvent.

Based on the estimates in Tables 6 through 10, the following service areas appear to need 50 or more long-term care beds by 1985.

— Yellowstone County (137 beds)
— Flathead County (57 beds)

Other areas where at least 20 additional beds may be required include:

— Custer County (26 beds)
— Hill County (46 beds)
— Lewis and Clark County (29 beds)

If applications are generated for additonal long-term care beds for these areas, they probably will involve expanding or augmenting existing facilities. It is unlikely that independent facilities of these sizes could be viable units in the long run. Again, alternative types of care should be explored before any application is approved.

3.2 ACCESSIBILITY

Those counties which had previously shown a surplus of beds are now indicating that many of those beds are being used. The MHSA is not recommending at this time that any facility be closed or reduced in capacity because they have an excess of available long-term care beds.

3.3 COST

It appears that 40 beds is the smallest size that independent long-term care facilities can be and still be financially viable. However, before any additional construction of long-term care facilities is approved, it is recommended that the availability of alternative sources of care be carefully investigated.

4.0 GENERAL ANALYSIS

4.1 ALTERNATIVES AND ISSUES

Alternatives to long-term care as addressed in this component include retirement homes, senior citizen apartments, personal care homes, group homes, adult foster care programs, geriatric day care centers and home health care agencies. These less restrictive types of health care programs should be developed to the maximum extent where possible.

The Geriatric Functional Rating Scale (GFRS) is an instrument used to document the level of functional ability of the elderly population and for projecting institutionalization and alternative program utilization.

Functional abilities for the elderly population appear to be at a fairly stable level until at least age 75, indicating that the population at risk for institutionalization is generally aged 75 or over, with risk increasing with age. It is important to note that GFRS scores of less than 20 generally indicate institutionalization, scores between 20 and 39 indicate a supportive requirement (alternative to institutionalization), and score of 40 and above indicate functional independence.

Information is limited on possible uses for vacant nursing home beds. However, in some cases it may be possible to base alternative care services in nursing home facilities, converting some of the vacant bed space into administrative and social/recreational program use. Home health, homemaker, therapy services, meals (on wheels), and social/recreational services are provided in nursing homes and are also part of the alternatives under consideration. Greater utilization of food preparation services and larger case loads for physical therapists, occupational therapists, and speech therapists are examples of the types of utilization of resources that might result from the provision of services for alternative programs by nursing homes.

County	Facility Name	City	Three Year Patient Day Average 1977,1978,1979	Average Daily Census	Estimated Bed Need 1985	Licensed Beds 1980	Deficit (+) Surplus (-)
Flathesd	Bigfork Convalescent Center	Bigfork	27,301	74.8	90	83	+ 7
	Flathead County N.H.	Kalispell	23,195[1]	63.5[1]	76	66	+10
	Immanuel Lutheran	Kalispell	50,909[1]	138.4[1]	166	140	+26
	Colonial Manor	Whitefish	20,059	55.0	66	60	+ 6
	North Valley Hospital	Whitefish	19,476	53.4	64	56	+ 8
Lake	St. Joseph Convalescent	Polson	37,725	103.4	114	112	+ 2
	St. Luke Community	Ronan	8,856	24.3	27	40	-13
	Happy Acres	Ronan	3,430	9.4	10	10	0
	Westside Rest Home	Ronan	7,939	21.8	24	23	+ 1
Lincoln	Libby Convalescent	Libby	22,225	60.9	79	63	+16
	Mountainview Manor	Eureka	6,206	17.0	22	40	-18
Mineral	Mineral County	Superior	7,141	19.6	23	20	+ 3
Missoula	Community Nursing Home	Missoula	21,131	57.9	69	62[2]	-71[2]
	Hillside Manor	Missoula	35,009	95.9	115	107	+ 8
	Royal Manor	Missoula	17,132	46.9	59	51	+ 8
	Wayside Nursing Home	Missoula	15,128	41.4	50	44	+ 6
Ravalli	Valley View Estates	Hamilton	34,810	95.4	105	98	+ 7
	North Valley	Stevensville	20,541	56.3	62	57	+ 5
Sanders	Hot Springs Convalescent	Hot Springs	20,745	56.8	63	72	- 9
	Clark Fork Valley	Plains	4,273	11.7	13	12	+ 1
SUBAREA TOTAL			398,231		1297	1294[2]	+ 3

[1]1979 Patient Day statistics utilized for patient day average.

[2]1980 Licensure for 140 beds.

TABLE 6

Estimated Long-Term Care Bed Need
in Northwestern Montana

County	Facility Name	City	Three Year Patient Day Average 1977,1978,1979	Average Daily Census	Estimated Bed Need 1985	Licensed Beds 1980	Deficit (+) Surplus (-)
Blaine	Sweet Memorial	Chinook	13,164	36.1	40	40	0
	Harlem Rest Home	Harlem	20,720	56.8	62	60	+ 2
Cascade	Cascade Co. Convalescent	Great Falls	82,013	224.7	247	232	+15
	Deaconess	Great Falls	30,970	84.8	93	90	+ 3
	McAuley Nursing Home	Great Falls	14,890	40.8	45	80[1]	-35
	Park Place	Great Falls	54,754	150.0	165	165	0
Choteau	Sande Convalescent	Big Sandy	10,244	28.1	31	29	+ 2
	Choteau Co. District Hosp.	Fort Benton	7,611	20.9	23	22	+ 1
Glacier	Memorial	Cutbank	13,582	37.2	41	39	+ 9
	Blackfeet	Browning	13,788	37.8	49	49	0
Hill	Hi-Line[2]	Havre[2]	6,195	17.0	22	18	+ 4
	Lutheran Home	Havre	35,365	96.9	126	102	+24
Liberty	Liberty County	Chester	13,601	37.3	45	40	+ 5
Pondera	Pondera Pioneer N.H.	Conrad	22,196	60.8	73	63	+10
Teton	Teton Nursing Home	Choteau	14,228	39.0	47	41	+ 6
	Teton Medical Center	Choteau	6,132	16.8	20	24	- 4
Toole	Toole County	Shelby	11,200	30.7	37	32	+ 5
SUBAREA TOTAL			370,653		1,173	1,108	-65

[1]Certificate of Need Issued in Auguat, 1980 for an additional 38 beds, for a total bed complement of 80 beds.

[2]Closed

TABLE 7

Estimated Long-Term Care Bed Need
in North Central Montsna

County	Facility Name	City	Three Year Patient Day Average 1977,1978,1979	Average Daily Census	Estimated Bed Need 1985	Licensed Beds 1980	Deficit (+) Surplus (-)
Beaverhead	Parkview Acres[1]	Dillon[1]	24,219[1]	66.4[1]	73	108	-35
Broadwater	Broadwater Co.	Townsend	6,144	16.8	20	18	+ 2
Deer Lodge	Community of Anaconda	Anaconda	24,471	67.0	80	68	+12
Gallatin	Bozeman Convalescent	Bozeman	28,267	77.4	93	103	-10
	Bozeman Deaconess	Bozeman	21,452	58.8	71	60	+11
	Gallatin Co.	Bozeman	19,684	53.9	65	56	+ 9
	Hillcrest Health Center	Bozeman	2,649	7.3	9	8	+ 1
Granite	Granite Co. Memorial[2]	Philipsburg[2]	---	--	--	13[2]	--
Jefferson	Hillbrook	Clancy	23,973	65.7	79	67	+12
Lewis & Clark	Cooney Convalescent	Helena	20,400	55.9	67	60	+ 7
	Helena N.H. & Health Facility	Helena	17,698	48.5	58	63	- 5
	Parkside Manor	Helena	19,182	52.6	63	52	+11
	Western Care	Helena	37,856	103.7	124	108	+16
Madison	Madison Co.[3]	Sheridan[3]	7,361[3]	20.2	21	39	-18
	Madison Co.	Ennis	13,906	38.1	42	40	+ 2
Meagher	Mountainview Memorial	White Sulphur	8,960	24.5	29	31	- 2
Park	Livingston Convalescent	Livingston	37,439	102.6	123	125	- 2
Powell	Colonial Manor	Deer Lodge	21,446	58.8	71	60	+11
Silver Bow	Butte Park Royal	Butte	64,082	175.6	193	200	- 7
	Crest	Butte	34,332	94.1	103	103	0
	Silver Bow General	Butte	35,670	97.7	107	100	+ 7
SUBAREA TOTAL			469,191		1491	1469[4]	+22

[1]1979 statistics utilized for inpatient day average.

[2]Opened December, 1979.

[3]1979 Statistics Utilized

[4]Excludes 13 beds at Granite County Memorial.

TABLE 8

Estimated Long-Term Care Bed Need
in Southwestern Montana

County	Facility Name	City	Three Year Patient Day Average 1977,1978,1979	Average Daily Census	Estimated Bed Need 1985	Licensed Beds 1980	Deficit (+) Surplus (-)
Big Horn	Big Horn County Memorial	Hardin	11,709[1]	32.1[1]	38	34	+ 4
	Mountain View Rest Haven	Hardin	6,836	18.7	22	36	-1
Carbon	Carbon Co. Health Care Center	Red Lodge	22,005	60.3	66	80	-14
	Carbon Co. Memorial N.H.	Red Lodge	6,495	17.8	20	24	- 4
Fergus	Central MT Hospital	Lewistown	24,866[2]	68.1[2]	75	70	+ 5
	Valle Vista Manor	Lewistown	34,062	93.3	103	95	+ 8
Musselshell	Roundup Memorial	Roundup	6,019	16.5	18	16	+ 2
Stillwater	Stillwater Convalescent	Columbus	28,417	77.9	93	81	+12
Sweet Grass	Pioneer Nursing Home	Big Timber	17,259	47.3	47	48	-
Wheatland	Wheatland Memorial	Harlowton	11,607	38.2	42	33	+ 9
Yellowstone	Glendeen N.H.	Billings	12,956[3]	35.5[3]	46	36	+10
	St. John's Lutheran	Billings	60,392	165.5	215	176	+39
	Valley Nursing Home	Billings	35,337	96.8	126	100	+26
	Western Manor	Billings	55,267	151.4	197	158	+39
	Yellowstone County	Billings	20,697	56.7	74	58	+16
	Laurel N.H.	Laurel	9,982	27.3	36	29	+ 7
SUBAREA TOTAL			363,906		1,218	1,074	144

[1]1977, 1978 statistics utilized for patient day average.

[2]1979 statistics utilized for patient day average.

[3]1977, 1979 statistics utilized for patient day average. Incomplete reporting year for 1978 reported.

TABLE 9

Estimated Long-Term Care Bed Need
in South Central Montana

County	Facility Name	City	Three Year Patient Day Average 1977,1978,1979	Average Daily Census	Estimated Bed Need 1985	Licensed Beds 1980	Deficit (+) Surplus (-)
Carter	Dahl Memorial	Ekalaka	5,918	16.2	16	21	- 5
Custer	Custer Co. Rest Home	Miles City	41,619	114.0	137	121	+16
	Friendship Villa	Miles City	23,475	64.3	77	67	+10
Daniels	Daniels Memorial	Scobey	11,338	31.1	37	55	-18
Dawson	Glendive Community	Glendive	24,385	66.8	80	75	+ 5
Fallon	Fallon Memorial	Baker	9,840	27.0	30	32	- 2
Garfield	Garfield Co. Home	Jordan	2,295	6.3	9	12	- 3
McCone	McCone Co.	Circle	5,898[1]	16.2[1]	19	40	-21
Phillips	Malta N.H.	Malta	11,724[2]	32.1[2]	35	60	-25
Powder River	Powder River N.H.	Broadus	9,073[3]	24.9[3]	30	40	-10
Prairie	Prairie Community	Terry	4,489	12.3	14	14	0
Richland	Richland Homes	Sidney	30,010	82.2	99	85	+14
Roosevelt	Community Hoapital	Poplar	6,745	18.5	22	22	0
	Faith Lutheran	Wolf Point	21,067[4]	57.7[4]	69	60	+ 9
	Roosevelt Memorial	Culbertson	6,891[4]	18.9[4]	23	32	- 9
Rosebud	Rosebud Community	Forsyth	14,971	41.0	41	47	- 6
Sheridan	Sheridan Memorial	Plentywood	13,197	36.2	43	65	-22
Valley	Valley View	Glasgow	31,248	85.6	103	92	+11
	Frances Mahon Deaconess	Glasgow	507	1.4	2	6	- 4
Wibaux	Wibaux Co. N.H.	Wibaux	12,650[5]	34.7[5]	42	40	+ 2
SUBAREA TOTAL			287,340		928	986	-58

[1] 1978, 1979 patient day statistics utilized for patient day average. Facility opened September 6, 1977.

[2] 1977, 1979 patient day statistics utilized for patient day average.

[3] 1979 patient day statistics utilized for patient day average.

[4] 1979 patient day statistics utilized for patient day average.

[5] 1978, 1979 patient day statistics utilized for patient day average.

TABLE 10

Estimated Long-Term Care Bed Need
in Eastern Montana

RELATIONSHIP OF GFRS TO AGE, STATE OF MONTANA

FIGURE 4

SOURCE: JRB Associates, Inc.

REFERENCES

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2. *Reference Manual for Project Review Standards and Criteria*. Tulane University School of Public Health and Tropical Medicine, January 7, 1974.
3. Interagency Task Force: Massachusetts Department of Public Health and the HSAS, *Proposed Interim Standards and Criteria for the Allocation of Long Term Beds*, November 1, 1976.
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APPENDIX 1
RECOMMENDED REVIEW CRITERIA: LONG TERM CARE

Some of the following guidelines are covered by state licensing and reimbursement regulations and must be complied with in order to operate a long-term care facility in Montana. They are restated in this document to emphasize the MHSA's concern in specific areas.

1. Proposed construction, expansion and modernization plans must be compatible with the estimated bed need of the service area.
2. Possible alternative methods of providing long-term care should be fully explored by any facility proposing construction and/or expansion.
3. Adequate capital should be available to cover the cost of operating the proposed project.
4. The individual components of the total project cost should be reasonable and legitimate expenditures. If the applicant intends to lease, rather than purchase the facility, the applicant must document (1) why leasing is preferred, and (2) the overall difference in cost between leasing and purchasing.
5. Residents' rights should be defined in writing, and appropriate steps should be taken to ensure that all staff, owners or operators and residents are aware of, understand, and comply with these rights.
6. In rural, sparsely populated communities with bed needs of less than 40, the development of combination hospital/long-term care facilities should be encouraged where there is clear evidence of need. Also if proven to be cost effective, services such as dietary or laundry should be shared between the hospital and long-term care facility.

APPENDIX 2

Level of Care Criteria

The Montana Foundation for Medical Care (MFMC) distinguishes the following levels of care:

1. *Acute Care:*

   Acute care is care which is given for the treatment of a medical condition that requires:

   A. Immediate availability of diagnostic and/or therapeutic services with equipment.

   B. Continued availability of medical supervision and/or other consulting medical staff.

   C. Continued availability of licensed nursing personnel.

2. *Long-term Care:*

   Long-term care patients may require a combination of skilled and non-skilled services. Level of care of the long-term care patient is not based on diagnoses or severity of medical conditions but on the type of care and frequency of treatment required. The two basic considerations are:

   1. The individual patient's medical needs.
   2. The specific services required to fulfill these needs.

   A. Skilled Nursing Care:

   Skilled nursing care is the care given to a patient under direct supervision of licensed nursing personnel and under the general direction of a physician to *achieve medically desired results* or to assure the *safety of the patient*. Skilled nursing care must be distinquished from supportive care. "The observation and assessment of the total needs of the patient and the rendering of direct services on a 24-hour basis, where the ability to provide the services, requires specialized training of an RN or an LPN, must be kept in mind.

   1. Since skilled nursing care represents skilled services on a *continuous* basis, the need for a single skilled service, e.g., IM injection twice a week, would rarely by itself justify a decision that skilled nursing care is needed.

   2. The classification of a paticular service as skilled is based on the technical or professional health training required to effectively perform or supervise the service.

   3. The importance of a particular service to an individual patient does not necessarily make it a skilled service, e.g., a primary need of a nonambulatory patient may be frequent changes of position in order to avoid development of decubiti (bed sores). If changing the patient's postion is the only regular and frequent service provided, it would not be a skilled service.

   4. The possibility of adverse effects from improper performance of an otherwise unskilled service, e.g., improper transfer of patients from bed to wheelchair, does not change it to a skilled service.

   B. Intermediate Care:

   Intermediate care is the care given to a patient to maintain a stable medical state by meeting his needs of daily living. Intermediate care patients may be provided with some skilled nursing services, but these services are not required on a 24-hour basis.

   The determining factor as to whether intermediate level care is required is the *type* of care required, not primarily the *amount* of care.

South Central

County	Facility Name	County ADM	Total ADM	% County
Big Horn	Big Horn County Memorial Hospital & Nursing Home	2	3	66.7
	Mountain View Rest Haven	5	8	62.5
Carbon	Carbon County Health Care Center	79	104	76.0
	Carbon County Memorial Nursing Home	15	15	100.0
Fergus	Central Montana Hospital-Nursing Home	96	108	88.9
	Valle Vista Manor	88	102	86.3
Musselshell	Roundup Memorial Nursing Home	6	6	100.0
Pondera	Pondera Pioneer Nursing Home	82	83	98.8
Stillwater	Stillwater Convalescent Center	26	43	60.5
Sweetgrass	Pioneer Nursing Home	17	18	94.4
Wheatland	Wheatland Memorial Nursing Home	21	24	87.5
Yellowstone	Glendeen Nursing Home	30	36	83.3
	St. John's Lutheran Nursing Home	83	98	84.7
	Valley Nursing Home	-	104	-
	Western Manor Nursing Home	168	212	79.2
	Yellowstone County Nursing Home	58	60	96.7
	Laurel Nursing Home	10	11	90.9
Subarea Total		786	1035	75.9

Estimated Number of Incounty Admissions For
Long-Term Care Facilities in South Central Montana (1979)

Southwestern

County	Facility Name	County ADM	Total ADM	% County
Beaverhead	Parkview Acres Convalescent Center	77	108	71.3
Broadwater	Broadwater County Rest Home	12	21	57.1
Deerlodge	Community Nursing Home of Anaconda	65	65	57.1
Gallatin	Bozeman Convalescent Center	82	86	95.3
	Bozeman Deaconess Hospital	33	34	97.1
	Gallatin County Rest Home	47	49	95.9
	Hillcrest Health Center	34	34	100.0
Jefferson	Hillbrook Nursing Home	0	58	0
Lewis & Clark	Cooney Convalescent Home	133	133	100.0
	Helena Nursing Home & Health Facilities	58	58	100.0
	Parkside Manor	28	44	63.6
	Western Care	55	64	85.9
Madison	Madison County Nursing Home	15	16	93.8
Meagher	Mountainview Memorial Nursing Home	40	40	100.0
Park	Livingston Convalescent Center	95	116	81.9
Powell	Colonial Manor of Deer Lodge	37	49	75.5
Silver Bow	Butte Park Royal Convalescent Center	187	211	88.6
	Crest Nursing Home	124	136	91.2
	Silver Bow General Hospital	67	70	95.7
Subarea Total		1189	1392	85.4

Estimated Number of Incounty Admissions For
Long-Term Facilities in Southwestern Montana (1979)

North Central

County	Facility Name	County ADM	Total ADM	% County
Blaine	Sweet Memorial Nursing Home	13	19	68.4
	Harlem Rest Home	15	22	68.2
Cascade	Cascade County Convalescent Nursing Home	183	183	100.5
	Deaconess Nursing Home	-	120	-
	McAuley Nursing Home	19	20	95
	Park Place Nursing Home & Rehabilition Center	189	244	77.5
Chouteau	Sande Convalescent Home	5	36	13.9
	Chouteau County District Hospital at Fort Benton	16	19	84.2
Glacier	Memorial Hospital and Nursing Home	32	36	88.9
	Blackfeet Nursing Home	18	19	94.7
Hill	Hi-Line Home	-	-	-
	Lutheran Home of the Good Shepherd	55	67	82.1
Liberty	Liberty County Nursing Home	39	39	100.0
Teton	Teton Nursing Home	9	17	52.9
	Teton Medical Center-Nursing Home	39	45	86.7
Toole	Toole County Hospital & Nursing Home	34	35	97.1
Subarea Total		666	921	72.3

Estimated Number of Incounty Admissions For
Long-Term Care Facilities in North Central Montana (1979)

Northwestern

County	Facility Name	County ADM	Total ADM	% County
Flathead	Bigfork Convalescent Center	88	99	88.9
	Flathead County Nursing Home	33	34	97.1
	Immanuel Lutheran Home	34	38	89.5
	Colonial Manor Nursing Home	--	--	--
	North Valley Hospital & Extended Care Center	26	31	83.9
Lake	St. Joseph Convalescent Center	77	104	74.0
	Happy Acres Home	1	1	100.0
	Westside Rest Home	10	10	100.0
	St. Luke Community	90	103	87.4
Lincoln	Libby Convalescent Center	53	65	81.5
	Mountain View Manor Nursing Home	17	24	70.8
Mineral	Mineral County Hospital	18	21	85.7
Missoula	Community Nursing Home	51	63	81.0
	Hillside Manor	92	102	90.2
	Royal Manor Nursing Home	33	34	97.1
	Wayside Nursing Home	64	69	92.8
Ravalli	Valley View Estates Nursing Home	53	68	77.9
	North Valley Nursing Home	26	31	83.9
Sanders	Hot Springs Convalescent	23	53	43.4
	Clark Fork Valley Hospital Nursing Home	9	9	100.0
Subarea Total		798	959	83.2

Estimated Number of Incounty Admissions For
Long-Term Care Facilities in Northwestern Montana (1979)

Eastern

County	Facility Name	County ADM	Total ADM	% County
Carter	Dahl Memorial Nursing Home	20	20	100.0
Custer	Custer County Rest Home	59	76	77.6
	Friendship Villa of Miles City	50	57	87.7
Daniels	Daniels Memorial Nursing Home	26	26	100.0
Dawson	Glendive Community Nursing Home	29	35	82.9
Fallon	Fallon Memorial Nuraing Home	28	29	96.6
Garfield	Garfield County Home and Hospital	6	7	85.7
McCone	McCone County Nursing Home	12	21	57.1
Phillips	Malta Nursing Home	8	11	72.7
Powder River	Powder River Nursing Home	24	48	50.0
Prairie	Prairie Community Nursing Home	6	7	85.7
Richland	Richland Homes	25	30	83.3
Roosevelt	Community Hospital Nursing Home	25	25	100.0
	Faith Lutheran Home	18	21	85.7
	Roosevelt Memorial Nursing Home	28	42	66.7
Rosebud	Rosebud Community Nursing Home	33	41	80.5
Sheridan	Sheridan Memorial Hospital	23	28	82.1
Valley	Valley View Nursing Home	25	27	92.6
	Frances Mahon Deaconess Hospital	-	49	-
Wibaux	Wibaux County Nursing Home	15	52	28.8
Subarea Total		460	652	70.6

Estimated Number of Incounty Admissions For
Long-Term Care Facilities in Eastern Montana (1979)

4.4
DIAGNOSTIC IMAGING

GOAL:

To provide for the rational development of diagnostic imaging (radiology, nuclear medicine, ultrasound, and xeromammography) services in Montana. These services should be reasonably accessible to the population while also cost justified and non-duplicative.

OBJECTIVE:

By 1985, each diagnostic radiology facility should have equipment, staff and space commensurate with its patient load.

LONG-RANGE ACTIONS:

1. By 1982, consider developing specific guidelines for the expansion of nuclear medicine, ultrasound and xeromammography facilities.
2. By 1982 formalize a referral relationship among facilities in Montana for nuclear medicine services.

1.0 BACKGROUND

1.1 SERVICE DEFINITION

The term diagnostic imaging refers to those procedures which are used to visualize internal body structures. These include the fields of:

— Diagnostic Radiology
— Nuclear Medicine
— Ultrasound
— Xeromammography
— Computerized Tomography (Not addressed in this component)

Diagnostic radiology involves the use of x-rays; nuclear medicine involves the insertion of radioactive tracer materials (radioisotopes) into the patient's body; ultrasound functions much like sonar, utilizing sound waves to penetrate tissues and then recording their echoes. Ultrasound is particularly useful in obstetrical services to monitor fetal heart beats. Both nuclear medicine and ultrasound have some therapeutic applications, but they are primarily used in diagnostic work. Xeromammography is a special diagnostic procedure used to detect breast cancer.

In a hospital, diagnostic radiology, ultrasound and xeromammography are usually found in the radiology department under the supervision of a general radiologist. Nuclear medicine may be found either in the radiology department under the supervision of a general radiologist or in the laboratory department under the supervision of a pathologist. A large proportion of the nuclear medicine studies require that samples be analyzed in the laboratory. These types of procedures (i.e., those done in the laboratory) are called in-vitro procedures while the radiological procedures are primarily in-vivo procedures. Each of these services can also be found in ambulatory settings such as physician offices and general medical clinics.

The purpose of these guidelines is to document where these services are currently being provided and to establish general criteria for the review of the proposed development of new services and the expansion of existing services in Montana. It is emphasized that all hospitals must provide at least basic radiology services. The more complex radiological, nuclear medicine and ultrasound equipment, however, must be rationally allocated so that they are efficiently utilized and accessible to all Montanans. More and more hospitals are considering expanding their services to include nuclear medicine and ultrasound capability.

The equipment associated with these services is expensive and their purchase, except to replace existing equipment, would be reviewed by the Health Systems Agency. Some typical minimum costs are:

— General radiographic (X-ray) unit	$ 40,000 +
— Radiographic and Fluoroscopic Room	$170,000 +
— General Purpose Special Procedures Room (for specialized studies)	$300,000 +
Nuclear Medicine	
— Basic Gamma Camera	$100,000
— Rectilinear Scanner	$ 40,000
Ultrasound	
— Simple System for Cardiac Studies	$ 20,000
— Compound B Scanner	$ 60,000
— Real Time Unit	$ 30,000
— Computer System	$100,000
Xeromammography	**$ 66,000**

In recent years, equipment used in these services has become most sophisticated and costly. At the present time, diagnostic radiology, nuclear medicine and ultrasound have computerized systems available. At the same time, it appears that new applications are being developed in each of these areas.

In contrast, the utilization of xeromammography units has dropped considerably in recent months, apparently because of concern over radiation exposure. Research is being conducted into alternative ways of performing mammograms with little or no radiation.

1.2 SERVICES AND SETTINGS

Generally, inpatient facilities in Montana are equipped to perform basic diagnostic radiology.

There are 12 facilities in Montana with nuclear medicine capability (Fig. 1) and 13 facilities with ultrasound capability (Fig. 2).

1.3 TRENDS

The statewide trends in Montana follow closely the national trends in utilizing the latest technology in diagnostic capability. During the past twelve months, six facilities have added ultrasound to their diagnostic capability which has added to the quality of care and in four instances greatly improved the accessibility of the service to many Montanans.

2.0 CURRENT SITUATION

2.1 AVAILABILITY

All acute inpatient facilities in Montana have basic radiological diagnostic capability. Also for certain more sophisticated imaging capability, referrals are made to a larger inpatient facility. Those facilities offering specialized nuclear medicine and ultrasound capability are shown in Figures 1 and 2.

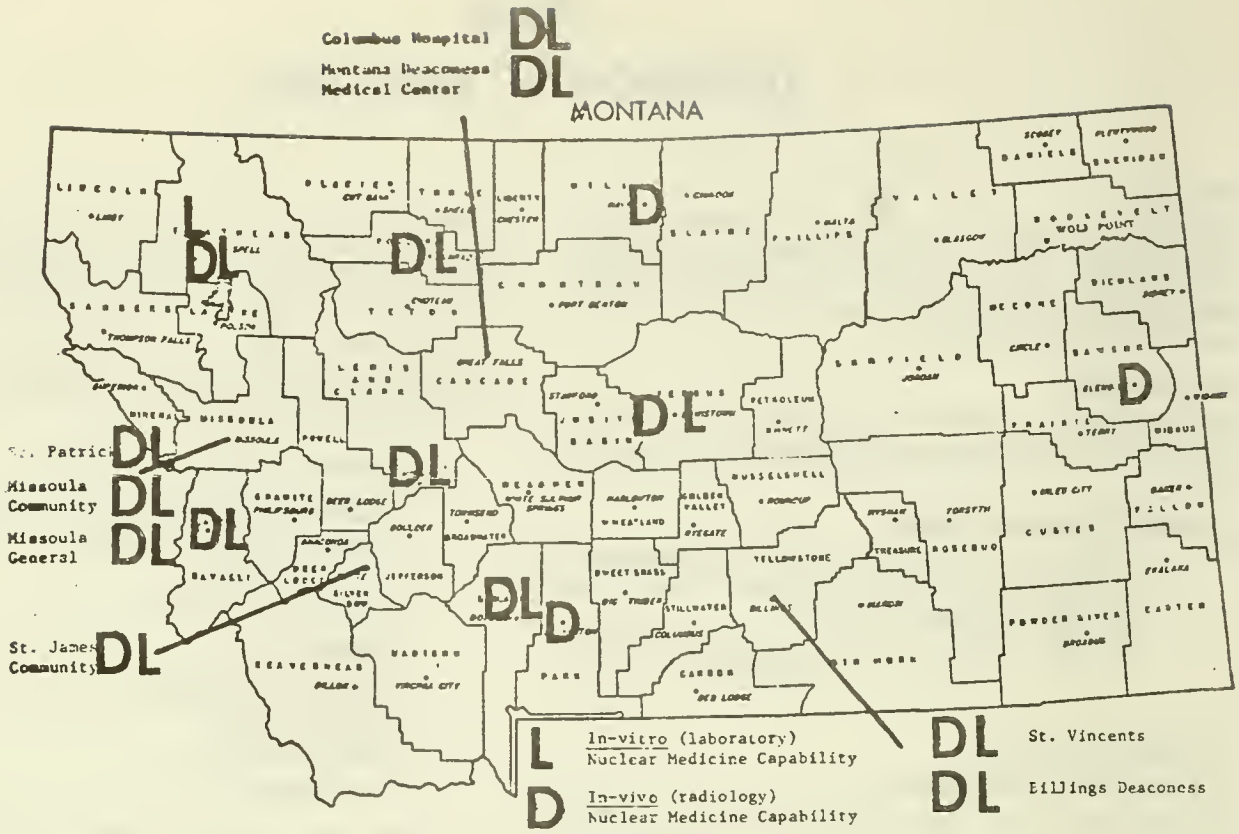


FIGURE 1 - Location of Hospitals in Montana with Nuclear Medicine Capabilities (1978)

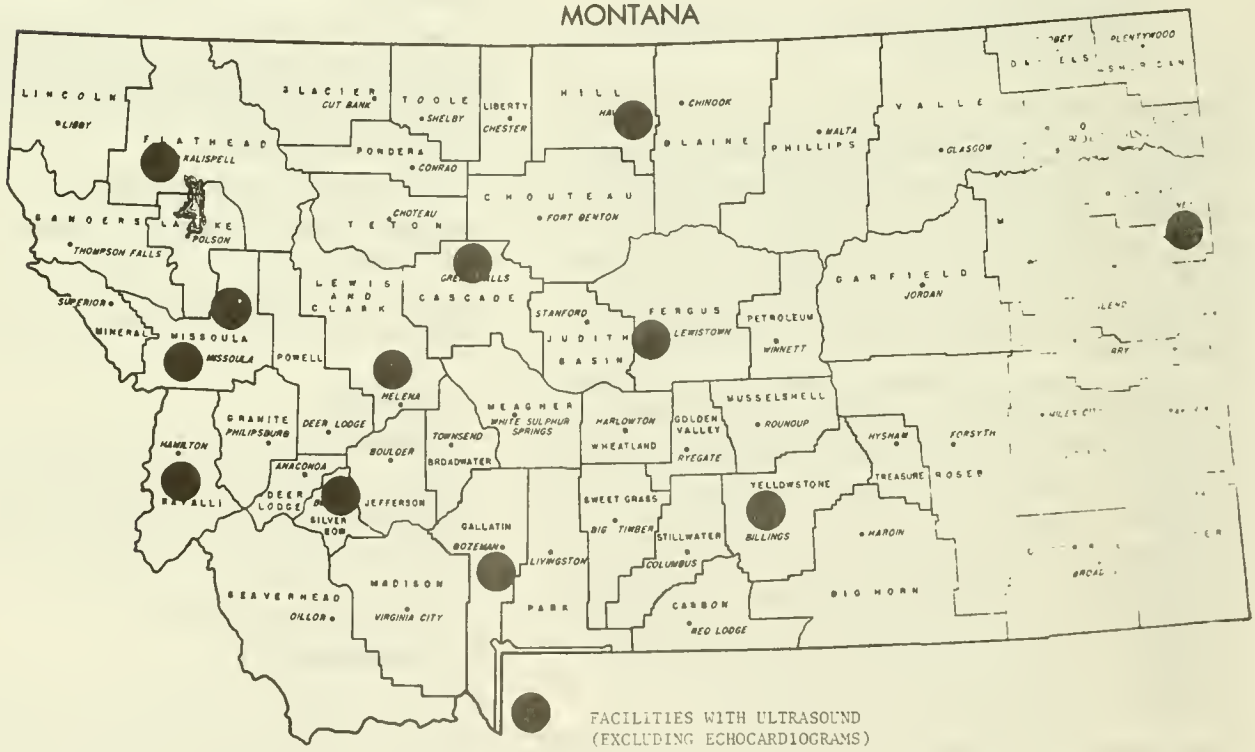


FIGURE 2

HOSPITALS IN MONTANA WITH ULTRASOUND CAPABILITY (1978

2.2 ACCESSIBILITY

Nuclear Medicine

Figure 1 indicates those hospitals currently having in-vitro (laboratory) or in-vivo (radiology) nuclear medicine capability. Table 6 shows the number of each type of exam performed by these facilities in 1979. No attempt has been made to interpret this data at this time and no attempt has been made to define the respective catchment areas of each facility.

It is noted that nuclear medicine facilities are monitored and regulated by the Nuclear Regulatory Commission and facilities need to obtain a license from them before they can handle radioactive materials.

Ultrasound

Figure 2 also shows those hospitals which currently possess ultrasound capabilities. These do not include facilities which perform echocardiograms (an ultrasonic procedure used in diagnosing heart disease). Table 7 also indicates the number of ultrasonic procedures performed by each facility in 1979. Again no attempt has been made to either interpret the numbers or define each facility's catchment area.

Xeromammography

It appears that most xeromammography units in Montana are found in private physician's offices and therefore are currently beyond the purview of the HSA. Two hospitals, Billings Deaconess and Columbus (Great Falls) have xeromammography units. The location of these units are displayed in Figure 3. No attempt has been made to interpret the workloads or to define catchment areas.

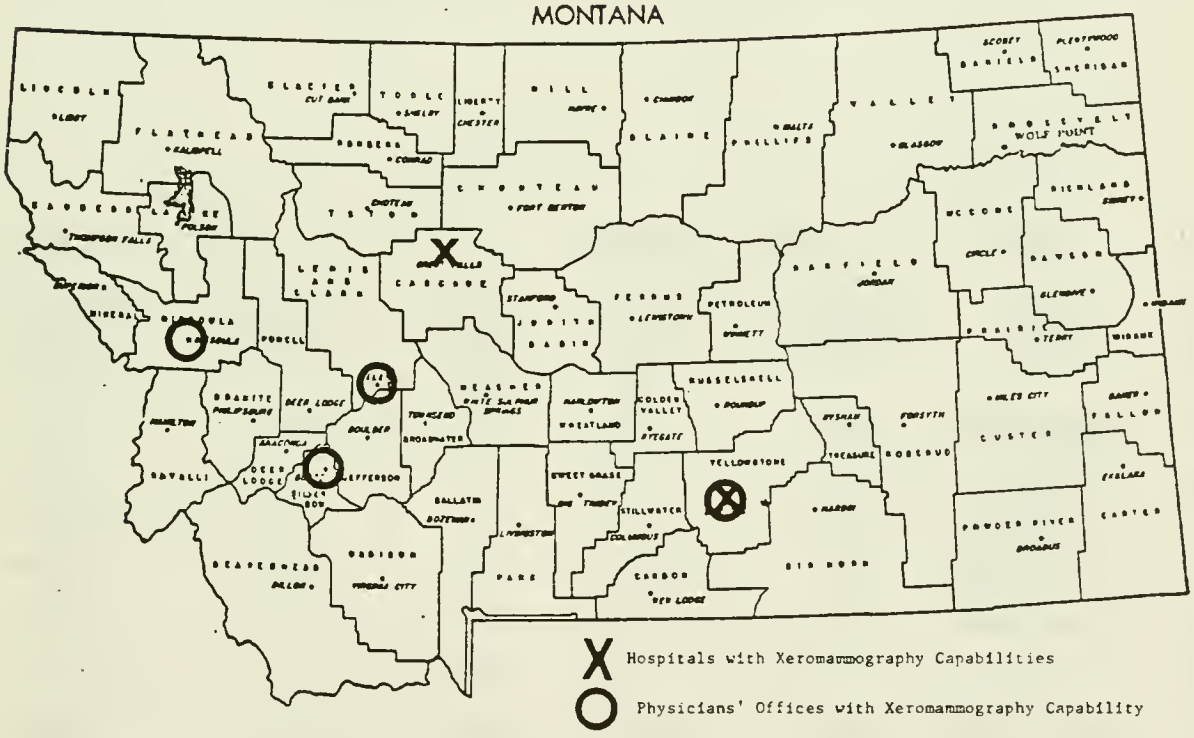


FIGURE 3 - Location of Xeromammography Units in Montana (1978)

		INPATIENT			OUTPATIENT		
County	Hospital	Radiological Exams	Patient Days	Exam P. Days	Radiological Exams	Emergency Visits	Visits Exam
Fergus Petroleum & Judith Basin	Central Montana	4,181	12,043	.35	1,931	3,342	.58
Wheatland & Golden Valley	Wheatland Mem.	505	1,519	.33	1,475	1,664	.89
Musselshell Sweet Grass	Roundup Mem. Sweet Grass	117	826	.14	654	2,757	.24
Stillwater	Stillwater Comm.	619	3,291	.19	284	565	.50
Carbon	Carbon Co. Mem.	1,796	4,203	.43	370	1,936	.19
Big Horn	Big Horn Co.	334	3,302	.10	292	2,901	.10
Yellowstone	Billings Deacon.	17,470	54,342	.32	9,273	15,416	.60
	St. Vincent	12,140	68,399	.18	16,941	32,472	.52
	TOTAL	37,162	147,925	.25	31,220	61,053	.51

TABLE 1

Number of Inpatient and Emergency Outpatient Diagnostic Radiological Procedures

Performed in South Central Montana Hospitals (1979)

		INPATIENT			OUTPATIENT		
County	Hospital	Radiological Exams	Patient Days	Exam P. Days	Radiological Exams	Emergency Visits	Visits Exam
Lincoln	St. John's Luth.	1,049	4,884	.21	4,527	3,822	1.18
Flathead	Kalispell Reg.	7,256	25,952	.28	5,376	7,929	.68
	North Valley	2,022	8,495	.24	3,153	3,194	.99
Sanders	Clark Fork Valley	1,553	4,589	.33	983	811	1.21
Lake	St. Josephs	1,486	5,341	.28	2,881	2,044	1.41
	St. Luke Comm.	919	4,238	.22	2,040	2,386	.85
	Mission Valley	821	3,028	.27	1,492	1,479	1.01
Mineral	Mineral County	263	1,078	.24	1,395	820	1.70
Ravalli	Marcus Daly	2,207	9,240	.24	5,739	4,084	1.41
Missoula	Missoula General	1,458	7,089	.21	1,087	472	2.30
	Missoula Comm.	5,098	19,451	.26	4,270	8,069	.53
	St. Patrick	12,668	46,108	.27	6,591	15,726	.42
	TOTAL	36,800	139,493	.26	39,534	50,836	.78

TABLE 2

Number of Inpatient & Emergency Outpatient Diagnostic Radiological Procedures

Performed in Northwestern Montana Hospitals (1979)

		INPATIENT			OUTPATIENT		
County	Hospital	Radiological Exams	Patient Days	Exam P. Days	Radiological Exams	Emergency Visits	Visits Exam
Glacier	Glacier Co. Mem.	1,390	3,525	.39	2,446	1,506	1.62
Toole	Toole County	559	2,440	.23	791	1,162	.68
Pondera	Ponders County	1,428	7,426	.19	2,980	1,204	2.48
Teton	Teton Memorial	571	3,120	.18	1,629	5,295	.31
Cascade	Montana Deacon.	18,238	55,172	.33	7,422	17,409	.43
	Columbus	-	53,898	-	-	-	-
Choteau	Choteau Co. Dis	300	1,511	.20	198	452	.44
	Big Sandy	162	1,117	.15	-	-	-
Hill & Blaine	Northern Mont.	7,698	21,960	.35	3,772	7,075	.53
Liberty	Liberty County	249	1,351	.18	603	655	.92
	TOTAL	30,595	151,520	.20	19,841	34,758	.57

TABLE 3

Number of Inpatient & Emergency Outpatient Diagnostic Radiological Procedures

Performed in North Central Montana Hospitals (1979)

		INPATIENT			OUTPATIENT		
County	Hospital	Radiological Exams	Patient Days	Exam P. Days	Radiological Exams	Emergency Visits	Visits Exam
Beaverhead	Barrett Memorial	439	3,201	.14	1,451	1,985	.73
Lewis & Clark	Ft. Harrison	5,189	41,097	.13	2,481	13,669	.18
Madison	Ruby Valley	424	2,109	.20	632	631	1.00
	Madison Valley	-	1,709	-	-	-	-
Gallatin	Bozeman Deacon	-	20,920	-	-	-	-
Lewis & Clark and Jefferson	St. Peter's	13,454	32,817	.41	9,610	11,594	.83
	Shodair Crippled Children's Hosp.	747	4,143	.18	798	1,992	.40
Broadwater	Broadwater	228	1,807	.13	-	-	-
Meagher	Mountain View	-	630	-	-	-	-
Silver Bow	St. James Comm.	9,394	39,697	.24	11,582	13,580	.85
	Silver Bow Gen.	-	22,296	-	-	-	-
Deer Lodge	Comm. Hosp. of Anaconda	2,442	7,393	.33	4,748	3,084	1.54
Powell	Powell Co.	1,329	5,849	.23	4,394	3,767	1.19
Granite	Granite Co. Mem.	163	431	.38	60	245	.24
Park	Livingston Mem.	1,806	6,733	.27	1,515	7,701	.20
	TOTAL	35,615	190,832	.19	37,271	58,248	.64

TABLE 4

Number of Inpatient & Emergency Outpatient Diagnostic Radiological Procedures

Performed in Southwestern Montana Hospitals (1979)

		INPATIENT			OUTPATIENT		
County	Hospital	Radiological Exams	Patient Days	Exam P. Days	Radiological Exams	Emergency Visits	Visits Exam
Valley	Frances Mahon Deaconess	2,456	7,938	.31	1,074	1,967	.55
Daniels	Daniels Mem.	147	1,470	.10	283	353	.80
Sheridan	Sheridao Mem.	1,304	5,650	.23	208	499	.42
Roosevelt	Roosevelt Mem.	-	-	-	175	721	.24
	Trinity	1,150	6,175	.19	864	3,677	.23
	Poplar Com.	972	2,740	.35	648	3,809	.17
McCone	McCooe County	418	2,700	.15	491	370	1.33
Garfield	Garfield County	359	744	.48	456	318	1.43
Richland	Community Mem.	3,583	9,985	.36	2,061	721	2.86
Dawsoo & Wibaux	Gleodive Com.	1,123	7,925	.14	1,517	2,021	.75
Rosebud & Treasure	Rosebud Com.	737	1,411	.52	1,774	551	3.22
Custer & Powder Riv.	Holy Rosary V.A. Hospital (Miles City)	4,285	15,741	.27	1,019	2,799	.36
Prairie	Prairie Com.	225	1,037	.22	288	406	.71
Phillips	Malta Hospital	521	5,638	.09	322	1,856	.17
Fallon	Fallon Mem.	382	1,086	.35	973	2,008	.48
Carter	Dahl Memorial	284	248		339	106	3.20
	TOTAL	17,848	70,488	.25	12,492	22,182	.56

TABLE 5 - Number of Inpatient & Emergency Outpatient Diagnostic Radiological Procedures Performed in Eastern Montana Hospitals (1979)

SOURCE: Unpublished data from the 1979 Hospital Annual Reports, Montana State Department of Health & Environmental Sciences. Does not include examinations performed in the emergency room.

TABLE 6
NUMBER OF INPATIENT AND OUTPATIENT NUCLEAR MEDICINE PROCEDURES - 1979

	Facility	Number of Inpatient Procedures	Number of Outpatient Procedures	Number of Outpatient Visits
1.	St. Vincent's Hospital (Billings)	639	604	483
	Billings Deaconess Hosp. (Billings)	1,022	1,807	699
2.	Livingston Memorial Hosp. (Livingston)	-0-	-0-	-0-
3.	Bozeman Deaconess Hosp. (Bozeman)	contracted	contracted	contracted
4.	St. James Hospital (Butte)	1,344	939	939
5.	St. Peter's Hospital (Helena)	1,673	1,483	1,483
6.	Marcus Daly Memorial Hosp. (Hamilton)	55	53	53

TABLE 6 (cont.)

7.	Missoula General Hospital (Missoula)	16	-0-	-0-
	Missoula Community Hosp. (Missoula)	-0-	-0-	-0-
	St. Patrick Hospital (Missoula)	365	262	216
8.	Kalispell Regional Hosp. (Kalispell)	291	444	444
9.	Pondera Medical Center (Conrad)	88	88	89
10.	Northern Montana Hospital (Havre)	360	279	279
11.	Columbus Hospital (Great Falls)	771	561	561
	Deaconess Hospital (Great Falls)	723	377	377

TABLE 7

NUMBER OF INPATIENT AND OUTPATIENT ULTRASOUND PROCEDURES - 1979

	Facility	Number of Inpatient Procedures	Number of Outpatient Procedures	Number of Outpatient Visits
1.	Northern Montana Hosp. (Havre)	47	158	158
2.	St. Vincent's Hosp. (Billings)	501	1,147	918
	Billings Deaconess Hosp. (Billings)	NA	NA	NA
3.	Bozeman Deaconess Hospl (Bozeman)	contracted	contracted	contracted
4.	Silver Bow General (Butte)	(Total inpatient and outpatient figures of all X-ray procedures = 11,033 -- outpatient visits = 3,400)		
	St. James Hospital (Butte)	276	222	221
5.	St. Peter's (Helena)	229	392	392

TABLE 7 (cont.)

6.	St. Patrick Hospital (Missoula)	-0-	-0-	-0-
	Missoula Community Hosp. (Missoula)	261	1,090	1,090
	Missoula General (Missoula)	-0-	-0-	-0-
7.	Kalispell Regional (Kalispell)	245	701	701

2.3 COST

The cost involved in providing Diagnostic Imaging Services varies among institutions (institutional cost) and is dependent on supply and maintenance costs. Primarily, in Montana, the California Code is utilized by providers.

A range of patient costs is indicated below for some selected procedures and represents, perhaps, the most realistic cost figures available at present.

Procedure	Patient Cost Range (Dollars)
Chest Film (2 views)	30- 32
Fluoroscopy	59- 75
Ultrasound (Midline)	42- 45
Ultrasound (Complete)	65- 70
Nuclear Thyroid	30- 35
Whole Body Scan	144-148
Liver Scan	72- 75
Lung Ventilation Study	132-135

3.0 FUTURE RESOURCE REQUIREMENTS

3.1 AVAILABILITY

Future availability of these services can be directly related to consumer needs, financial feasibility and maintenance of professional proficiency.

There are few guidelines and standards for diagnostic imaging services. The primary theme emphasized is:

- — financial feasibility (i.e. potential for generating more revenue than operating costs)
- — minimizing duplication of these services in any one community, and
- — some assurance of an adequate workload so that the professionals providing the service remain proficient.

Crude estimates have been developed by the Hospital Survey Committee (Philadelphia) to estimate the number of diagnostic x-ray rooms needed based on the number of procedures performed per day.[2] These are:

Procedures Per Day	Number of Rooms Needed
20 or less	1
21-45	2
46-70	3
71-105	4
106-135	5
136-162	6
163-189	7
190-216	8
217-243	9

It is recognized that a small rural hospital with one basic fluoroscopic/radiographic machine may necessitate a back-up machine in the event of equipment malfunction.

3.2 ACCESSIBILITY

Basic Diagnostic Radiology should continue to be provided in all inpatient facilities in Montana, with appropriate replacement of equipment to reflect technology and equipment improvements for energy efficiency.

Additionally, facilities in Montana that can show financial feasibility and are able to attract professional capability should move toward inclusion of ultrasound and nuclear medicine capability.

One study has suggested that a population base of between 50,000 and 70,000 people is needed to support a single nuclear medicine facility.[3] Another study has indicated hospitals of the size found in Montana are likely to perform less than 2,400 nuclear medicine (in-vivo and in-vitro, combined) procedures annually.[4] However, because a great number of modifications in Nuclear Medicine Departments are possible, simple standards cannot be stated.

Similarly, no estimates of the number of ultrasound procedures or xeromammography exams required to break even are available, nationally or for Montana.

3.3 COST

There are no future cost estimates available, however one can expect usual annual cost increases predicated on cost of supplies, energy and general inflation.

4.0 GENERAL ANALYSIS

4.1 ALTERNATIVES AND ISSUES

The State of Montana should establish a formalized referral network between hospitals in order that timely referrals can be accomplished, after development of objectives and method of operation of a network has been defined.

REFERENCES

1. Brogdon, B.G. and W.J. Tuddenham, "Department Planning: Fundamental Considerations for Diagnostic Radiology" in *Planning Guide for Radiological Installations, Fascicle 4; Basic Concepts,* prepared under the auspices of the Committee on Department Planning, Commission on Radiologic Equipment and Facilities, American College of Radiology, 1977.
2. Hospital Survey Committee, *Cost Containment and Financing of Hospital Construction, Philadelphia, 1974.*
3. *Orkand Corporations, Guidelines for Nuclear Medicine Services, 1976.*
4. *Siemsem, J.K. et al, Report of Committee on Nuclear Medicine Departmental Facilities to the American College of Nuclear Physicians,* May, 1976.

APPENDIX I

RECOMMENDED REVIEW CRITERIA: DIAGNOSTIC IMAGING FACILITIES

1. Each service should be under the supervision of a physician trained and/or experienced in the field (diagnostic radiology, nuclear medicine, ultrasound, and xeromammography). In most cases this would be a general radiologist, but other physicians may have sufficient training in nuclear medicine and ultrasound to satisfy this criterion.
2. Appropriately qualified and trained support personnel must be available to perform the procedures.
3. Duplication of the same service in the immediate area should not be encouraged.

4.5
HOME HEALTH CARE

GOAL

Home health care should be available and easily accessible to all Montanans while at the same time minimizing duplication of service areas.

OBJECTIVES:

1. By 1982, encourage the establishment of home health agencies, if they can be shown to be financially feasible, in four service areas currently unserved. These areas are:
   — Lewistown area (Planning District 6 in South Central Montana).
   — Glasgow and Wolf Point areas (Planning District 1 in Eastern Montana).
   — Cut Bank, Shelby, Conrad and Choteau areas (Planning District 5 in North Central Montana).
   — Havre, Chester and Chinook areas (Planning District 4 in North Central Montana).
2. By 1985, encourage the expansion of four existing agencies into geographical areas currently unserved. In addition, encourage small agencies to expand the scope of services where financially feasible.
3. By 1983, monitor the activities of those agencies delivering services in the same geographical areas to ensure minimal duplication.

LONG RANGE ACTIONS:

The primary means of implementing the objectives is through the Certificate of Need and Appropriateness Review process. However, before providers will be encouraged to undertake such a project, a number of long-range actions should be performed. These include:

1. Encouraging third party payors to expand coverage of home health services as an option and within limits to avoid excessive services and charges.
2. Developing educational programs to make the general public more aware of the content, availability and need for home health services.
3. Developing programs to make physicians, nursing home personnel, and discharge planning personnel in hospitals more aware of the potential advantages of home health care.
4. Encouraging the use of Federal grant programs to provide start-up monies and expansion funds for home health agencies.
5. Initiating a program to provide the administrators of home health agencies with technical assistance in the area of fiscal management.

1.0 BACKGROUND

1.1 SERVICE DEFINITION

Home health care is the provision of home health services and supportive services to patients in their own homes or ambulatory settings for the purpose of preventing disease, promoting, maintaining or restoring health and minimizing the effects of illness or disability.[1]

Home care can be used both as an adjunct to, or as a substitute for, the services offered in more restrictive settings. For many patients, it offers valuable psychological benefits by keeping them in a familiar environment, assuring patient dignity, and by maintaining supportive family relationships.[2]

In addition to nursing services, other services commonly delivered by home health agencies include:

— Home Health Aide and Homemaker Services
— Nutritional Guidance
— Occupational Therapy
— Physical Therapy
— Speech Therapy
— Medical Social Services
— Respiratory Therapy

1.2 SERVICES AND SETTINGS

Agencies providing home health care may be based in hospitals, long-term care facilities, public health departments, or they may be profit or non-profit, independent organizations. There are a variety of organizational arrangements in which different services are provided. First, the agency may provide the service with its own staff. Most agencies have the capability of delivering at least skilled nursing care and homemaker services. Second, some services such as physical, occupational and speech therapy may be provided under a contract with another provider. Finally, because some services such as barber, cosmetology, pastoral and transportation services are not reimbursed by third party payors, the agency may arrange for them to be available to their clients upon request.

Home health aid services are services provided under the direction of a registered nurse and involve the provision of personal care services. Homemaker services, on the other hand, need not be delivered by a home health agency and do not require the supervision of a registered nurse. These services involve general housekeeping duties to aid the home health care patient, and do not involve direct bodily care.

The age group predominantly served by home health care agencies is people 65 years of age and older. In a national study of 12 home health agencies, the median age of the clients served was 69; about 63 percent were 65 years and over.[3] However, home care is also provided to the developmentally disabled, the chronically ill and any others requiring this type of care. In 1976, about 62 percent of the visits made by Montana home health agencies were to Medicare patients.

The types of organizations sponsoring home health agencies in Montana appear to be equally distributed among public health departments, hospitals and independent, non-profit corporations.

Table I indicates the types of services offered by each agency. As required by licensure, all agencies provide skilled nursing care. All agencies also have home health aide-homemaker capability as well. The larger agencies offer physical therapy and speech therapy services. Other services vary from agency to agency, depending upon the needs of the patients, the local resources available, and whether or not the services are reimbursable.

1.3 TRENDS

Home health care is a relatively new concept in Montana. Many of the newly developed home health agencies are sponsored and supported by an existing entity, such as a hospital or public health department.

2.0 CURRENT SITUATION

2.1 AVAILABILITY

Figure 1 shows the location of licensed home health agencies and the areas currently being served in Montana. At the present time, there are 17 licensed home health agencies which provide services or have Certificate of Need approval to deliver services. Four agencies were approved in 1978, reflecting an increased interest in Montana to provide the service. No new agencies applied to initiate services in 1979. Two of the four agencies issued a Certificate of Need in 1978 did not become operational.

Two of the hospital-based home health agencies (Montana Deaconess and Columbus hospitals in Great Falls) and the Missoula Rehabilitation Center primarily serve their parent organization's former patients.

Three home health agencies serve multi-county areas. They are:

- — Yellowstone City-County Health Department — serving Yellowstone, Big Horn, Carbon, Stillwater, Musselshell, Golden Valley, and Sweetgrass Counties.
- — West-Mont Home Health Care, Inc. (Helena) — serving Lewis and Clark, Jefferson and Broadwater Counties.
- — Area V Home Health Agency (Anaconda) — serving Deer Lodge, Powell, Beaverhead and Madison Counties.

Table 2 presents 1979 utilization figures for the agencies in operation at that time. The number of nursing visits varies from patient to patient depending on their need. On the average, each patient receives about 11 nursing visits a year. This is similar to national figures. A national study of 12 home health agencies conducted in 1974 in cooperation with the National League of Nursing indicated that the average home health patient had 16 visits. Of these, 10.8 involved skilled nursing, 4.3 home health aid and 0.6 physical therapy.

2.2 ACCESSIBILITY

A major constraint in providing home health care in Montana is the distance between the agency and the patients — in short, accessibility. The rural nature in much of Montana necessitates a great deal of travel time, and therefore some of the expense involved in providing home health care is accrued in travel. Because of the geographical expanse of Montana and its small population base, a home health agency in every county would be impractical.

2.3 COST

The overall cost of home health care services is often less than services delivered in other settings. In 1976, the U.S. General Accounting Office reviewed 20 publications comparing the costs of home health care to those of alternative services. Nineteen of the 20 demonstrated that home health care can be less expensive under some circumstances than alternative institutional care. Table 3 summarizes the results of two studies comparing hospitalization costs to home health care costs.

Subarea and Home Health Agency	NURSING	HOMEMAKER	PHYSICAL THERAPY	OCCUPATIONAL THERAPY	SPEECH THERAPY	MEDICAL SOCIAL SERVICES	NUTRITIONAL GUIDANCE	RESPIRATORY THERAPY	PHARMACEUTICAL	CLINICAL LABORATORY	EQUIPMENT & SUPPLIES
			Number of Visits								
Northwestern											
Ravalli County Public Health Nursing Service	1734		36		24						
Missoula City-County Health Dept. (HHA)	2592		NA	NA	NA						
Missoula Rehabilitation Center	49		150	23	2	14	2				1[1]
Flathead County Home Health Agency	1352	1760[3]	266		20[illegible]						
St. Joseph Home Health Care Agency	1134	65	24	NA	67	5	10	115	NA	NA	NA
Lake County Home Health Agency	2459.	1249	206								
Mineral County Home Health Agency			- NO LONGER OPERATIONAL -								
North Central											
Montana Deaconess Medical Center Home Health Agency	4057	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Columbus Hospital Home Health Agency	1376		64	7	2	7	1376			7	
Northern Montana Hospital (HHA)[2]	394		4					1			NA
Blackfeet Home Health Service	1419	433	519		10						30 peop
Southwestern											
Area V Home Health Agency	10,278	3500	620				885	6			303
City-County Home Health Service (Butte)	7599		569		177	20					NA
West-Mont Home Health Care, Inc.	8435	4603	1580	302	227	65	1	32			
Gallatin County Health Department		hr									
South Central											
Yellowstone City-County Health Visiting Nurse Service	5570	1491	1506	460	119	X	X				X
Eastern											
Nursing Care in the Home	4062										NA
Holy Rosary Hospital Home Health Service	1521		45		9	0	NA				
Dawson County Council on Aging*											

1) Supplies only
* Certificate of Need issued May 1, 1980
2) No longer operational
NA: Statistics not available
3) Home Health Aides

TABLE 1 - Services Offered by Licensed Home Health Agencies in Montana 1979

Source: Unpublished data from the Annual Survey of Home Health Agencies 1979, Montana State Department of Health & Environmental Sciences.

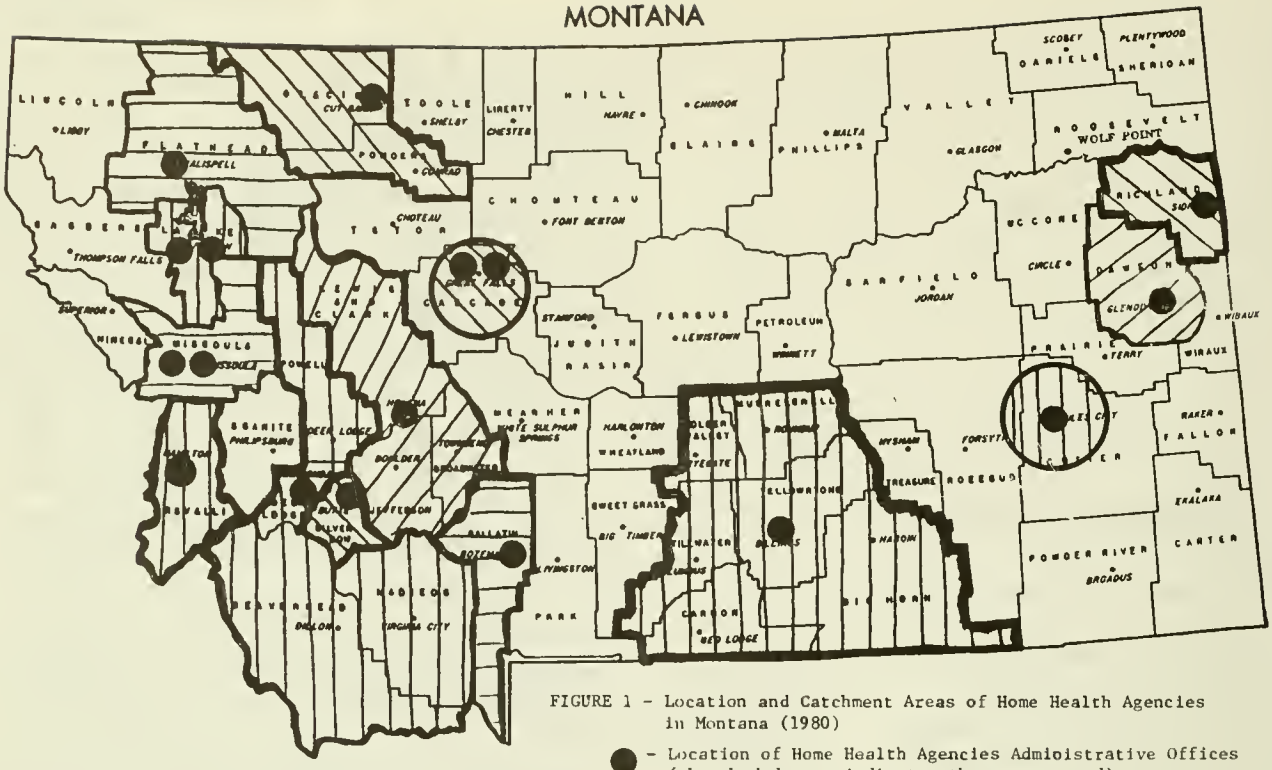


FIGURE 1 - Location and Catchment Areas of Home Health Agencies in Montana (1980)

● - Location of Home Health Agencies Admioistrative Offices (the shaded area indicates the area served)

NOTE:

1) Missoula City-County HHA serves a 20 mile radius of Missoula and the Seeley Lake area.
2) St. Joseph HHA (Polson) also serves the Hot Springs area of Sanders County.
3) The Blackfeet HHA is not yet operational in its entire catchment area.
4) Certificate of Need issued for Dawson County HHA May 1, 1980.

Subarea & Home Health Agency	Location	Number Patients Served	Total Number Nursing Visits	Total Operating Expenses	Percent Revenue from Medicare	New Cases 1979	Cost Per Patient Served $	Cost Per Patient Visit
Northwestern								
Ravalli County Public Health	Hamilton	94	1734	$ 95,532	68%	66	1016.30	53.25
Missoula City-County Health Dept.	Missoula	150	2592	$ 110,690	36%	75	737.93	26.63
Missoula Rehabilitation Center	Missoula	13	49	$ 6,235[1]	78%	13	479.62	25.87
Flathead County Home Health Agency	Kalispell	163	1352	$ 93,437	51.1%	93	573.23	69.11
St. Joseph Home Health Care Agency	Polson	85	1134	$ 28,810	93%	65	338.94	20.29
Lake County Home Health Agency	Polson	184	2459	$ 75,055	56%	89	407.91	19.18
Mineral County Home Health Agency	Superior		- NO LONGER OPERATIONAL -					
North Central								
Montana Deaconess Medical Center (HHA)	Great Falls	NA	4057	$ 55,019	70%	141		13.56
Columbus Hospital Home Health Agency	Great Falls	170	1376	$ 19,393	94%	164	114.08	6.83
Northern Montana Hospital (HHA)[2]	Havre	30	394	$ 31,968	77%	27	1065.60	72.33
Blackfeet Home Health Service	Browning	134	1419	$ 82,243	17%	86	613.75	34.54
Southwestern								
Area V Home Health Agency	Anaconda	1200	10,278	$ 69,952	46%	337	58.29	4.49
City-County Home Health Service	Butte	534	7599	$ 245,234	55%	266	459.24	20.58
West-Mont Home Health Care, Inc.	Helena	664	8435	$ 372,515	55%	377	561.02	35.6
Gallatin County Health Department	Bozeman	NA						
South Central								
Yellowstone City-County Health Department - Visiting Nurse Service	Billings	702	5570	$ 239,830	56%	250	341.64	
Eastern								
Nursing Care in the Home	Sidney	68	4062	$ 120,774	1%*	23	1776.09	2
Holy Rosary Hospital Home Health Service	Miles City	104	1521	$ 47,953	45%	94	461.0	18
Dawson County Council on Aging**	Glendive**							
		4295	54,031	1,694,640		2166	381.75	31.3

* 98.2% County and Revenue Sharing
** Certificate of Need issued May 1, 1980
1 1980-81 Budget
2 No longer operational
3 Medicare only

TABLE 2 - 1979 Utilization Statistics Home Health Agencies in Mont

Source: Unpublished data from the Annual Survey of Home Health Agencies 1979, Montana State Department of Health and Environmental Sciences

Program	Number of Home Care Patients	Avg. Number of Hospital Days Saved per Patient	Total Number of Hospital Days Saved	Total Net Savings	Total Savings Per Patient
Blue Cross of Greater Philadelphia Home Care Program	3,940	13	51,220	$1.3 Mil.	$330
Rochester (New York) Home Care Association Program	1,500	21	31,500	$1.0 Mil.	$667

TABLE 3
Results of Two Studies Comparing the Costs of Home Health Care with Hospital Inpatient Days

SOURCE: American Medical Association "Statement on Home Health Care" Chicago, Illinois, 1973.

To ameliorate accessibility barriers to home health care programs, the further development of agencies serving multi-county districts with satellite units (without administrative personnel) should be encouraged. This strategy would provide a greater population base for home health agencies, enabling them to provide a comprehensive "package" of services and helping them to reduce their administrative costs. This concept is being used by the three largest home health agencies in Montana currently serving multi-county districts.

Based upon incomplete reporting, the total cost to operate the home care system in Montana in 1979 was $1.6 million. The average cost per patient was $374. About 57 percent of the revenues generated are from Medicare. It is noted, however, that all of these statistics are extremely variable.

In most cases, home health agencies must seek extra funding in addition to the reimbursement received from patients and insurers. Some receive partial funding from the counties they serve, from the hospitals in which they are based, or from private donations. Usually these funding sources are unreliable.

3.0 FUTURE RESOURCE REQUIREMENTS

3.1 AVAILABILITY

In Montana, all agencies delivering skilled nursing services and one additional therapeutic service in the home are required to be licensed. As a result of this legislation, all new agencies and those existing agencies wishing to expand either their service area or their scope of service must apply for a Certificate of Need from the State Health Planning and Development Agency. The purpose of these guidelines is to develop MHSA policy toward home health care and to establish review criteria for the future development of these agencies.

In estimating service need, the Governor's 12 planning districts are used as a geographical base. This does not mean that all home health agencies should be organized according to these districts. Each home health agency should determine how big an area it can practically serve and what is financially feasible for it to serve. The Governor's planning districts only suggest a possible strategy and method for delivering multi-county services.

At this time there are no established and accepted case loads for home health agencies. Consequently, Table 4 only estimates the number of potential clients which may be served by a home health agency in each Governor's administrative district. In preparing these estimates, it is assumed that about 12 patients per 1,000 population will use home health care services if they are available. It also shows the number of home health agencies currently operating in each district.

Based upon estimates in Table 4 and comparing them to the areas served by existing agencies, it appears that the five areas having the most potential for developing home health agencies are:

- District 6 — Although the Yellowstone City-County Health Department is serving the three southern counties, it still appears that an agency might be established in the Lewistown area.
- District 1 — There are currently no home health agencies serving the residents of this area. It appears that Glasgow or Wolf Point might be able to support a regional agency in the near future.
- District 5 — Although the Blackfeet Home Health Agency (Browning) is serving Glacier and Pondera Counties, it appears that Shelby, Cut Bank, Chester, Choteau and Conrad might be able to support a joint, multicounty agency.
- District 2 — The Badlands Home Health Agency was approved in 1978 to serve Dawson, Wibaux and Fallon Counties. Because the Federal grant for start-up was never awarded, it never became operational. Nevertheless, a multi—county home health service in this area still appears feasible.
- District 4 — Northern Montana Hospital in Hill County no longer provides home health care services to Hill and Blaine Counties.

3.2 ACCESSIBILITY

In addition to the five districts specified under Section 3.1, other home health agencies should also consider expanding their services to surrounding counties. Most of the rural counties do not have a sufficient population base to individually support a home health agency, but could contribute to making a regional agency a viable institution.

3.3 COST

With respect to cost, the need for home health care services in any given service area should be examined according to financial feasibility (the potential revenue generated) and resources available (personnel).

	1985 Population	Estimated Home Health Patients	Number of Home Health Agencies Currently Serving the Area
Northwestern Montana			
District 10 - Lincoln, Flathead, Sanders & Lake Co.	102,455	1,229	?
District 11 - Mineral, Missoula & Ravalli Co.	103,638	1,243	3
North Central Montana			
District 4 - Liberty, Hill & Blaine Counties	29,529	354	0
District 5 - Glacier, Toole, Pondera, Teton, Choteau & Cascade Counties	127,237	1,527	3
Southwestern Montana			
District 8 - Lewis & Clark, Jefferson & Broadwater Counties	58,528	702	1
District 9 - Gallatin, Park & Meagher Counties	60,864	730	1
District 12 - Powell, Granite, Silver Bow, Deer Lodge, Beaverhead & Madison Counties	86,406	1,036	2

TABLE 4 - Estimated Need for Home Health Agencies in Montana by 1985 (by Governor's Planning Districts)

	1985 Population	Estimated Home Health Patients	Number of Home Health Agencies Currently Serving The Area
South Central Montana			
District 6 - Judith Basin, Fergus Petroleum, Musselshell, Golden Valley & Wheatland Counties	24,676	296	0
District 7 - Yellowstone, Stillwater, Sweet Grass, Carbon & Big Horn Counties	156,141	1,874	1
Eastern Montana			
District 1 - Phillips, Valley, Daniels, Sheridan & Roosevelt Counties	41,641	499	0
District 2 - Garfield, McCone, Dawson, Richland, Prairie & Wibaux Co.	33,010	390	2
District 3 - Treasure, Rosebud Custer, Powder River, Carter & Fallon Counties	35,601	427	1

TABLE 4 (cont.) - Estimated Need for Home Health Agencies in Montana by 1985 (by Governor's Planning Districts)

4.0 GENERAL ANALYSIS
4.1 ALTERNATIVES AND ISSUES

Funding is a major problem experienced by most home health agencies in Montana. Because of Medicare and Medicaid restrictions and similar restrictions on reimbursement from other third party payors, many home health agencies have funding lags for reimbursement, or carry patients for whom they will receive no reimbursement unless the patient can pay for the service. In addition, many third party insurers in Montana do not offer home health coverage. For example, Blue Cross, one of the Medicare Fiscal Intermediaries serving Montana, does not provide this coverage in its private insurance plans.

Medicare participation seems essential for most home health agencies to survive. To be eligible for Medicare reimbursement, each agency must also be certified by the Medicare program. In Montana, Medicare certification requirements and the State's licensing requirements are identical.

Another problem home health agencies encounter is obtaining crucial physician support and referrals. Physicians are often unaware of the program or are unwilling to participate in it. It appears physican education programs may be warranted. At the same time, many of the prospective patients appear to associate home health services with welfare services. Again, educational efforts are needed to inform the public about home health care and what it encompasses.

REFERENCES:

1. Revised Codes of Montana, Section 96-7301, subsection (2), Providing for the Licensing and Regulation of Home Health Agencies in Montana by the Department of Health and Environmental Sciences.
2. American Medical Association, "Statement on Home Health Care," Chicago, Illinois, 1973, Section 5.
3. Levenson, G., *Type, Length and Cost of Care for Home Health Patients*, Council on Home Health Agencies and Community Health Services, National League for Nursing, New York, 1975, Pub. No. 21-1589.

APPENDIX I
RECOMMENDED REVIEW CRITERIA HOME HEALTH CARE

1. Each new proposed home health agency or one expanding service should show that the agency is financially viable and capable of becoming self-supporting within three years after initiation of these services.
2. All new agencies must guarantee that they will serve all segments of the population and not intentionally restrict services to any specific group.
3. All agencies proposing to initiate or expand services should show support from referral sources and document coordination of in-home services in the community and between agencies. (Hospitals, nursing homes, physicians and health departments in the communities to be served.)
4. All new home health care agencies should agree to participate in the Medicare program and be certified by Medicare.
5. Any agency that wishes to provide services within the geographic area of an existing agency should prove that it will not adversely impact or endanger the financial stability of the existing agency or increase patient cost.
6. The availability of manpower such as community nurses, physical therapists, speech therapists, occupational therapists, etc., should be addressed in all Certificate of Need applications, including those for development of new agencies, expansion of geographic areas or of the services provided.

4.6
COMPREHENSIVE REHABILITATION PROGRAMS

GOAL:

1. The development of a coordinated system for the provision of rehabilitation programs in Montana should be promoted. Missoula, Great Falls and Billings are developing comprehensive rehabilitation programs to serve the State of Montana. Rehabilitation programs would provide comprehensive rehabilitation services to assure continuity of care.

OBJECTIVES:

1. By 1985, the feasibility of developing a rehabilitation program in the Southwest service area should be explored. The cooperation of representatives from the existing rehabilitation programs (St. Vincent Hospital, Missoula Rehabilitation Center and Montana Deaconess Medical Center) and the Montana Health Systems Agency should be solicited for the study.
2. By 1982, public information and education programs should be actively employed to elevate physician and consumer awareness of the comprehensive rehabilitation programs available in Montana.

LONG RANGE ACTIONS:

1. The Health Systems Agency should work with representatives from all three facilities to develop a uniform data base on rehabilitation utilization statistics.
   This data base should include:
   — the number of rehabilitation treatments by diagnosis for both inpatient and outpatient care,
   — the number of inpatient and outpatient admissions,
   — the number of inpatient days,
   — out-of-state referrals for rehabilitative care.

1.0 BACKGROUND

1.1 SERVICE DEFINITION

The Commission on the Accreditation of Rehabilitation Facilities (CARF), defines a rehabilitation facility as "an organizational and physical entity in which a soundly based program of integrated and coordinated services are provided. These services are directed toward the physical, emotional, mental, social and vocational restoration and adjustment of handicapped, disabled children or adults."[1] Rehabilitation services typically consist of evaluation, treatment, education, counseling, training and placement, and are provided by personnel qualified in the various phases of the rehabilitation process.

Conceptually, a rehabilitation program represents a multitude of services coordinated through a central source. Realistically, no facility or program can provide all types of rehabilitation services. Consequently, the programs are identified according to the service emphasis to be offered.[2] For the purpose of the Montana Health Systems Plan, rehabilitation services are limited to the health and medical aspects of physical restoration. Furthermore, only those rehabilitation programs in Montana having the following characteristics are addressed:

1. The program is under the supervision of a physiatrist or formally designated, full-time medical director,
2. the rehabilitation program is accredited by the Commission on the Accreditation of Rehabilitation Facilities, or the standards prescribed for rehabilitation programs by the Joint Commission on the Accreditation of Hospitals, and
3. the program has licensed, comprehensive, short-term, rehabilitation beds. A short-term rehabilitation bed is occupied by a rehabilitation patient for a period of 45 to 90 days.

The primary objective of physical restoration services is to upgrade the physical functions of a patient. Patients under this category may include, but are not limited to, the physically disabled who are victims of stroke, paraplegia and quadriplegia, multiple sclerosis, muscular dystrophy, arthritis, amputation and head injuries.

The personnel most often involved in the rehabilitation process include the physician, nurse, physical therapist, occupational therapist, speech pathologist, psychologist and the social worker. Other rehabilitation team members may include, but are not limited to, the prosthetist, psychiatrist, orthotist, prevocational evaluator and the vocational counselor. Comprehensive rehabilitation care is delivered in an environment specifically designed and staffed to serve the disabled patient after he or she is medically stabilized.

A physiatrist is a medical specialist trained in the area of rehabilitative and physical medicine. A patient catchment area of approximately 100,000 people or more is generally needed to support a physiatrist. In lieu of a physiatrist, the program may be directed by a neurologist, neurosurgeon, orthopedic surgeon, or a physician, who, on the basis of training or experience, is knowledgeable in rehabilitative medicine.

The physician evaluates the extent of the disability and its effect upon the patient's psychological, emotional and vocational functions. Working with the referring physician, the physiatrist or the rehabilitation medical director prescribes a program of treatment using the services and skills of all the rehabilitation team members.[3]

The nurse is often the team coordinator and usually has special training in the area of rehabilitative medicine. The physical therapist provides exercise treatment programs, heat massage, hydrotherapy and pool therapy, gate training and ambulation services.

The occupational therapist is responsible for the restoration or improvement of a patient's physical endurance and coordination, and the development of adequate substitute skills when normal bodily functions cannot be restored, such as activities involved with everyday living, dressing, eating and writing.

A prosthetist is a specialist in designing and replacing missing body parts with artificial ones. An orthotist, on the other hand, is a specialist concerned with orthopedic apparatuses used to support, align, and prevent, or correct deformities or to improve the function of the movable body parts. The social worker coordinates the admission procedures, counsels the patient and family, provides casework services for patient adjustment to the handicap, offers financial counseling, and acts as the rehabilitation team liaison to other agencies involved with rehabilitation follow-up care. In

addition, the social worker, along with the entire rehabilitation team staff, is responsible for discharge planning.

1.2 SERVICES AND SETTINGS

This component does not address rehabilitation as it relates to vocational education, sheltered employment, speech pathology, audiology, or related therapeutic services. Similarly, individual services such as physical therapy, occupational therapy, and other rehabilitation services offered within the institutional setting are not addressed. All hospitals and long-term care facilities are required by licensure to provide or contract for physical therapy services. Acute care hospitals do provide many rehabilitation services, including occupational, speech, and physical therapy, and social services. Likewise, many of the home health agencies in Montana are licensed to provide some of these services.

Individuals needing medical rehabilitation services usually enter a rehabilitation program through physician referral. Once at the rehabilitation center, the rehabilitation process involves the same steps for each patient. First the patient is evaluated and a prognosis is made as to his or her disability. A treatment plan is then recommended and the appropriate program is identified for selected patients having reasonable potential for rehabilitation. After each phase of treatment is completed, patient follow-up is initiated to assure the continuation of any services needed.

Usually, a rehabilitation program involves a cooperative arrangement between several facilities. Therapy can be administered in an outpatient facility, hospital, long-term care facility, or, if possible, the patient's home. Although many rehabilitation services are provided in acute care hospitals or long-term care facilities, these services differ in a rehabilitation setting because of the intensity of treatment rendered to the patient. For example, the rehabilitation patient may receive one or two physical therapy treatments per day in the acute care hospital or long-term care facility compared to four to six hours of therapy per day in a rehabilitation facility, depending upon the patient's ability to tolerate therapy. As the rehabilitation patient progresses, he or she may be treated by the different groups involved in rehabilitation. For example, a stroke patient may initially be treated in an acute care center and then by a home health agency or an outpatient facility.

Self-help groups for the disabled patient offer an important component in the comprehensive rehabilitation process. Physicians and other health care personnel should work with the respective societal and self-help groups during the rehabilitation of the patient.

1.3 TRENDS

The development of comprehensive rehabilitation programs in Montana is relatively new. Of the three programs evident, all have recently recruited a specialist in rehabilitative medicine to direct the program.

Rehabilitation services became evident after World War I in 1918. Medically oriented rehabilitation services resulted from legislation broadening the core of rehabilitation from a vocational restoration. The need for a comprehensive approach to rehabilitative medicine was exemplified during World War II. This era also witnessed the advent of a team approach in dealing with the rehabilitation patient.

The 1960's experienced legislation authorizing State and Federal payment to people afflicted with substantial handicaps to employment. This legislation encompassed the socially, culturally and physically disabled. Table 1 estimates the incidence and prevalence of selected chronic conditions for Montana using available national statistics. These seven conditions represent the most frequently encountered physical disabilities treated in rehabilitation units.

Stroke victims are among the most common type of patients treated in a rehabilitation facility. Each year, an additional 800 Montanans have a stroke. Although strokes are the third leading cause of death in Montana, many victims survive their strokes with partial paralysis or speech impediments. Based on national statistics, it is estimated that there are currently 5,800 people in Montana who have had a stroke.

Based on national statistics, the number of paraplegics and quadriplegics in Montana is estimated to be around 373 and 224, respectively. Estimates for Montana seem to suggest that approximately 450 paraplegics and quadriplegics presently exist. Most paralyses are the result of automobile accidents. Many paraplegics and quadriplegics are referred to out-of-state rehabilitation centers for the specialized treatment not available in Montana. Roughly 75 percent of the 40 rehabilitation patients under the Rehabilitative Services Division of the Department of Social and Rehabilitation Services are referred to out-of-state centers. Most of these referrals are quadriplegics and paraplegics going to the Craig Center in Denver, the University of Utah Rehabilitation Center in Salt Lake City,[4] or the University of Washington Rehabilitation Center in Seattle.

Multiple sclerosis is a crippling neurological disease mostly affecting individuals between 20 and 40 years of age.[4] It is frequently difficult to diagnose until the symptoms have progressed to the point of disability. Based on national statistics, an estimated 300 people in Montana are afflicted with this disease. The estimated number of multiple sclerosis victims may be understated. No statistics are available on the number of new diagnoses per year for this disease.

Muscular dystrophy is a name given to a group of chronic, non-contagious, progressive diseases characterized by the wasting and consequent weakness of the voluntary muscles. Nearly 70 percent of all the known muscular dystrophy patients in the United States are between the ages of three and 13.[5]

Although the prevalence of muscular dystrophy is presently not reported and a nationwide census has never been attempted, the disease is estimated to affect 200,000 people nationally. The Billings Muscular Dystrophy Office estimates that there are approximately 200 muscular dystrophy patients in Montana at this time, of which 60 percent are adults.

One out of every ten Americans is afflicted with arthritis severe enough to require medical care. Arthritis and rheumatism are second only to heart disease as the most widespread chronic illness in the United States today.[6] The most crippling form of arthritis is rheumatoid arthritis affecting mostly the young and middle-aged, those between 20 and 45 years of age. Rheumatoid arthritis is an inflammatory connective tissue disease that results in permanent joint deformities and other complications producing disability and chronic invalidism. Based on national statistics, nearly 63,000 people in Montana are arthritics, with an additional 6,000 people contracting some form of arthritis every year. However, not all arthritics warrant some type of rehabilitation services.

Although no statistics are available on the number of amputations occurring each year, it is estimated that there are approximately 900 amputees in Montana. Considering the hazardous occupations evident in Montana, such as the logging industry, farming and mining, the number of amputations generated yearly may be considerable. The successful rehabilitation of the amputee is highly dependent upon the early referral of the patient to a rehabilitation program. The Emergency Medical Services Bureau of the Montana Department of Health and Environmental Sciences reports that during 1977, approximately 1,927 people were treated in hospitals for head injuries. Most head injuries are the result

of motor vehicle accidents. Of the 1,927 head injuries seen, about two percent resulted in death for the victim. A high percentage of severe head injury patients need intensive, long-term team rehabilitation. It is not possible at this time to assess the number of rehabilitation patients seen by all three facilities. The data base varies for each facility in that inpatient and outpatient admissions are counted differently; for instance, some facilities only count inpatient admissions. An additional factor complicating patient data comparisons is that all three facilities are, in varying degrees, still developing their programs. All three rehabilitation programs should experience an increase in the number of rehabilitation patients served due to the recruitment of a physiatrist at each facility.

	Prevalence Per 100,000 (U.S.)[1]	Incidence Per 100,000 (U.S.)[2]	Estimated No. of People in Montana with the Affliction	Estimated New Cases Annually in Montana
Stroke[3]	754.9	105.8	5,745	805
Quadriplegia[4]	30.0	———	224	———
Paraplegia[4]	50.0	———	373	———
Multiple Sclerosis	44.3	———	337	———
Muscular Dystrophy[5]	98.4	———	748	———
Arthritis	9,024.6	846.9	68,677	6,445
Amputations[6]	134.8	———	1,026	———
Head Injuries[7]	———	———	1,927	———

1) Prevalence represents the number of individuals with the disease or chronic condition at any given time per 100,000 population (1970 Census).
2) Incidence represents the number of individuals in a given population getting the disease or chronic condition in a given time period (1970 Census figures are used).
3) Cerebrovascular disease statistics.
4) Vital and Health Statistics, National Health Survey, National Center for Health Statistics, DHEW.
5) Obtained from The Killers and Cripplers, Facts on the Major Diseases in the U.S. Today, National Health Education Committee, p. 200.
6) Absence of major extremities.
7) Reported by the Department of Health and Environmental Sciences, EMS Bureau, 1977.

TABLE 1 - Estimated Incidence and Prevalence of Selected Chronic Conditions (U.S. and Montana)

Source: U.S. Department of HEW, Public Health Service, Health Resources Administration, Prevalence of Chronic Conditions of the Genitourinary, Nervous, Endocrine, Metabolic, and Blood-Forming Systems and of Other Selected Chronic Conditions, 1973, pp. 18-19.

2.0 CURRENT SITUATION

2.1 AVAILABILITY

All three facilities in Montana presently have rehabilitation programs under the direction of a full-time medical director. The rehabilitation program at St. Vincent Hospital is under the full-time supervision of a physiatrist and is presently licensed for eight rehabilitation beds. Services provided include vocational services and placement, nursing services, physical, occupational therapy and prosthetic training, speech therapy, audiological services, psychiatric counseling, amputee services, post surgery services, and social services. Table 2 lists the rehabilitation facilities along with the long-term care and home health agencies served. The services provided at each facility are depicted in Table 3. Table 4 depicts the utilization statistics for two of the three facilities.

The Missoula Rehabilitation Center offers rehabilitation services primarily on an outpatient basis. The Center is located next door to Missoula Community Hospital. The Center has working arrangements with both Missoula Community Hospital and Missoula Community Nursing Home. Missoula Community Hospital has 10 designated rehabilitation beds and Missoula Community Nursing Home provides 20 rehabilitation beds located in a designated wing of the nursing home. Although the Missoula Community Nursing Home rehabilitation beds are licensed as long-term care beds, they are built and staffed to accommodate a patient needing comprehensive, intermediate term rehabilitation services. Amputee services and services to post-surgery patients are also offered. The program is accredited by CARF and utilizes the services of a physiatrist. The Center provides physical, occupational, speech and hearing therapy, prosthetic training, psychiatric counseling, social services, job placement, a pain clinic, sexuality programs, driving program for the handicapped, pediatric cardiac clinic, vocational evaluation and psycho-social aid for the patient. The Center maintains a crippled children's clinic and offers a teaching program in physical and occupational therapy for nurses, as well as for the families and friends of the disabled. Rehabilitative services are also provided to local nursing homes and two home health agencies.

The Missoula Rehabilitation Center has, during the past few years, been serving fewer children for rehabilitation care. This is attributable to a Federal mandate requiring the school systems to contract and provide rehabilitation services to school-aged children.

Montana Deaconess Medical Center in Great Falls has a 12 bed rehabilitation unit and provides occupational therapy, speech and hearing therapy, physical therapy, psychiatric counseling, dietetic and pastoral services, psychological services and social services. Rehabilitation services are provided to the long-term care and home health patients from Deaconess. The program is accredited by the Commission on the Accreditation of Rehabilitation Facilities (CARF) and the Joint Commission on the Accreditation of Rehabilitation Facilities and is under the direction of a physiatrist. Both inpatient and outpatient rehabilitation services are provided.

2.2 ACCESSIBILITY

Figure 1 depicts the location of the three comprehensive rehabilitation programs in Montana (Billings, Great Falls and Missoula).

Two MHSA subarea regions, Southwestern and Eastern, do not have access to local rehabilitation programs. Based upon a bed need methodology addressed under Section 3.0,

Rehabilitation Program	Full Time Medical Director	CARF[1] Accredited	JCAH[2] Accredited	Licensed Acute Care Beds Designated	Licensed Long-Term Care Beds Designated	Home Health Services
St. Vincent Hospital (Billings) New Hope	X		X	8 designated beds		
Missoula Rehabilitation Center (Missoula) Special Care Unit	X	X		10 designated beds	20 beds designated Missoula Com. Nursing Home	Missoula Rehabilita tion Center
Montana Deaconess Medical Center (Great Falls)	X	X	X	12 designated beds	Montana Deaconess	Montana Deaconess

[1]Commission on the Accreditation of Rehabilitation Facilities

[2]Joint Commission on the Accreditation of Hospitals

Table 2
Comprehensive Rehabilitation Programs in Montana

Rehabilitation Services Provided	Rehabilitation Programs		
	St. Vincent Hospital	Missoula Rehabilitation Center	Montana Deaconess Medical Center
Vocation rehabilitation services/placement	X[1]	X	X
Rehabilitation nursing services[2]	X	X	X
Physical/occupational therapy and prosthetic training	X	X	X
Speech therapy	X	X	X
Audiological services	X	X	X
Psychiatric counseling	X	X	X
Services for the amputee	X	X	X
Post surgery services	X	X	X
Social services	X	X	X

[1]Available June, 1979

[2]Registered Nurse with postgraduate training in rehabilitation

Table 3
Rehabilitation Services Provided Or Contracted For, By Facility

it is recommended that the Southwestern Subarea investigate the feasibility of developing its own program. Eastern Montana, on the other hand, does not presently have the population to justify a comprehensive rehabilitation program, and therefore, is assumed to access the program available in Billings. The rural nature of Eastern Montana is exemplified by its relation to the other four MHSA subareas pertinent to the population evident per square mile. Summarized, the population densities per square mile are as follows:

— Northwestern	9.7
— Southwestern	6.8
— North Central	6.2
— South Central	6.0
— Eastern	2.1

As with most specialized health care services in Montana, geographical and climatic phenomenon present the primary barriers to accessibility. This becomes particularly important when viewed in terms of the proxemics of one hour driving times (50 miles) to the three rehabilitation programs denoted in Figure 1.

2.3 COST

Medical rehabilitation which effectively restores the psychological, social and physical functions of a patient is a cost effective service. The Rehabilitation and Chronic Diseases Hospital Section of the American Hospital Association specifies four aspects of rehabilitative services which can result in cost savings; appropriate referral from acute care hospitals to rehabilitation services for certain types of cases, early referral to rehabilitation care, the use of alternative systems of care, and the health education of patients and families.

The early referral of appropriate cases from acute care to rehabilitation programs also may result in a cost savings. One method of accomplishing early referral is a formalized transfer agreement between rehabilitation facilities or units and acute care facilities.

The health education of patients and their families also affords the hospital an effective avenue for cost containment strategies. Health education efforts may be directed to diabetes management, stroke clinics, and heart attack prevention.

3.0 FUTURE RESOURCE REQUIREMENTS

3.1 AVAILABILITY

The following is a comparison of the number of rehabilitation beds available by Montana Health Systems Agency Subarea and an estimate of the number of rehabilitation beds needed. Rehabilitation beds in long-term care facilities are not considered since these beds are typically used for medically stable patients who are expected to show little or no improvement. Comprehensive, short-term rehabilitation beds, on the other hand, involve a level of care requiring higher nurse-to-patient ratios and typically offer the comprehensive, interdisciplinary approach to rehabilitative care as addressed in this component. The average length of stay for a rehabilitation patient is between 45 and 90 days.

The bed need estimates are to serve as guidelines only for Certificate of Need reviews concerning the licensing of dedicated rehabilitation beds. The methodology used to estimate the need for rehabilitation beds is based on the following assumptions:

1. Medical/surgical admissions are averaged by subarea for the three-year period 1977-1979.
2. There will be five rehabilitation admissions per 1,000 general hospital/medical surgical admissions.
3. The average length of stay per admission is assumed to be 45 days.
4. The desired occupancy for rehabilitation beds is 80 percent.

It is further assumed that the 17 county Eastern Subarea would access the St. Vincent Rehabilitation Program as the need for comprehensive rehabilitation services arises.

Table 5 summarizes the projected bed need estimates by subarea using the above methodology and relates the estimated bed need to the number of rehabilitation beds available in each of the subareas. It appears that each service area should have no more than 18 licensed beds for a rehabilitation program, with the exception of the South Central/Eastern service areas.

3.2 ACCESSIBILITY

The bed need quidelines and the resultant service areas for rehabilitation program expansion or development do not preclude a facility from developing a rehabilitation program if the licensing of rehabilitation beds is not anticipated.

The Southwestern Subarea populace and its accessibility to a comprehensive rehabilitation program would be better served if such a program were developed within the area. For the majority of the population, the Missoula Rehabilitation program affords the consumer of this service a two-hour drive, and more if transport to Great Falls is necessary.

3.3 COST

To ensure to some degree the financial viability of a comprehensive rehabilitation program, acute care rehabilitation beds are necessary. Before a facility dedicates additional rehabilitation beds, the existing rehabilitation beds should be occupied no less than 80 percent of the time. Facilities wishing to develop a comprehensive rehabilitation program in an area which is presently unserved by such a program and planning to license rehabilitation beds should consider the Health Systems Agency bed need estimates as guidelines in determining their bed need. If the facility's proposed catchment area is already served by an existing program, the existing program should be operating at a minimum of 80 percent occupancy in their rehabilitation beds.

The Department of Social and Rehabilitation Services presently reimburses for selected rehabilitation services. The average charges are:

— Occupational therapy	$ 30.00/hr
— Occupational evaluation	$ 35.00/evaluation
— Speech therapy	$ 35.00/hr
— Speech evaluation	$ 52.50/evaluation
— Psychological therapy	$ 45.00/hr
— Psychological evaluation	$ 102.00/evaluation

4.0 GENERAL ANALYSIS

4.1 ALTERNATIVES AND ISSUES

Physician and consumer awareness as to the availability of the comprehensive rehabilitation programs in Montana is vital for enhancing the utilization of these services. The St. Vincent Hospital rehabilitation program (New Hope), the Missoula Rehabilitation Center, and the Montana Deaconess Medical Center should continue to pursue all public information and awareness activities on the rehabilitation services available.

	Adult Rehabilitation Admissions	Rehabilitation Patient Days	Average Length of Stay	Occupancy Rate
St. Vincent Hospital Billings (New Hope)	65	2821	43.4	96.6
Missoula Rehabilitation Center, Missoula (Special Care Unit)	NA	NA	NA	NA
Montana Deaconess Medical Center Great Falls	118	2447	20.7	55.9

NA: Statistics Not Available

Table 4
Recent Utilization Statistics for
Rehabilitation Programs in Montana

Source: Montana Department of Health and Environmental Sciences, 1980.

Subarea (Service Area)	Mean Med./Surg. Admissions '77-'78-'79	Expected Adult Rehab. Admissions	Rehab. Patient Days	Avg. Daily Census	ADJ ADC[3]	Beds Needed[4]	Rehab. Beds Available	Deficit (Surplus)
Northwestern[1]	21,967	110	4,950	13.6	15.0	18	30	(12)
North Central	17,734[2]	89	4,005	11.0	11.0	14	12	2
Southwestern	21,497	107	4,815	13.2	14.5	18	0	18
South Central/ Eastern	30,494	152	6,840	18.7	20.6	24	8	16
STATE TOTAL	91,692	458	20,610	56.5	62.2	74	50	24

1) Missoula Community Nursing Home designated a 20-bed rehabilitation wing specifically designed for patients from the Missoula Rehabilitation Center. This facility opened April 30, 1979. In addition, Missoula Community Hospital has designated 10 rehabilitation beds.

2) 1979 Medical/Surgical Admissions for Columbus Hospital in Great Falls averaged from 1977 and 1978 data.

3) Adjusted Average Daily Census: Adjusted for population growth expected by 1985.

4) Computed on the probability that an unoccupied rehabilitation bed will be available 80 percent of the time, $ADC + .85\sqrt{ADC}$

TABLE 5 - Rehabilitation Bed Need Estimates
and Beds Available by Subarea

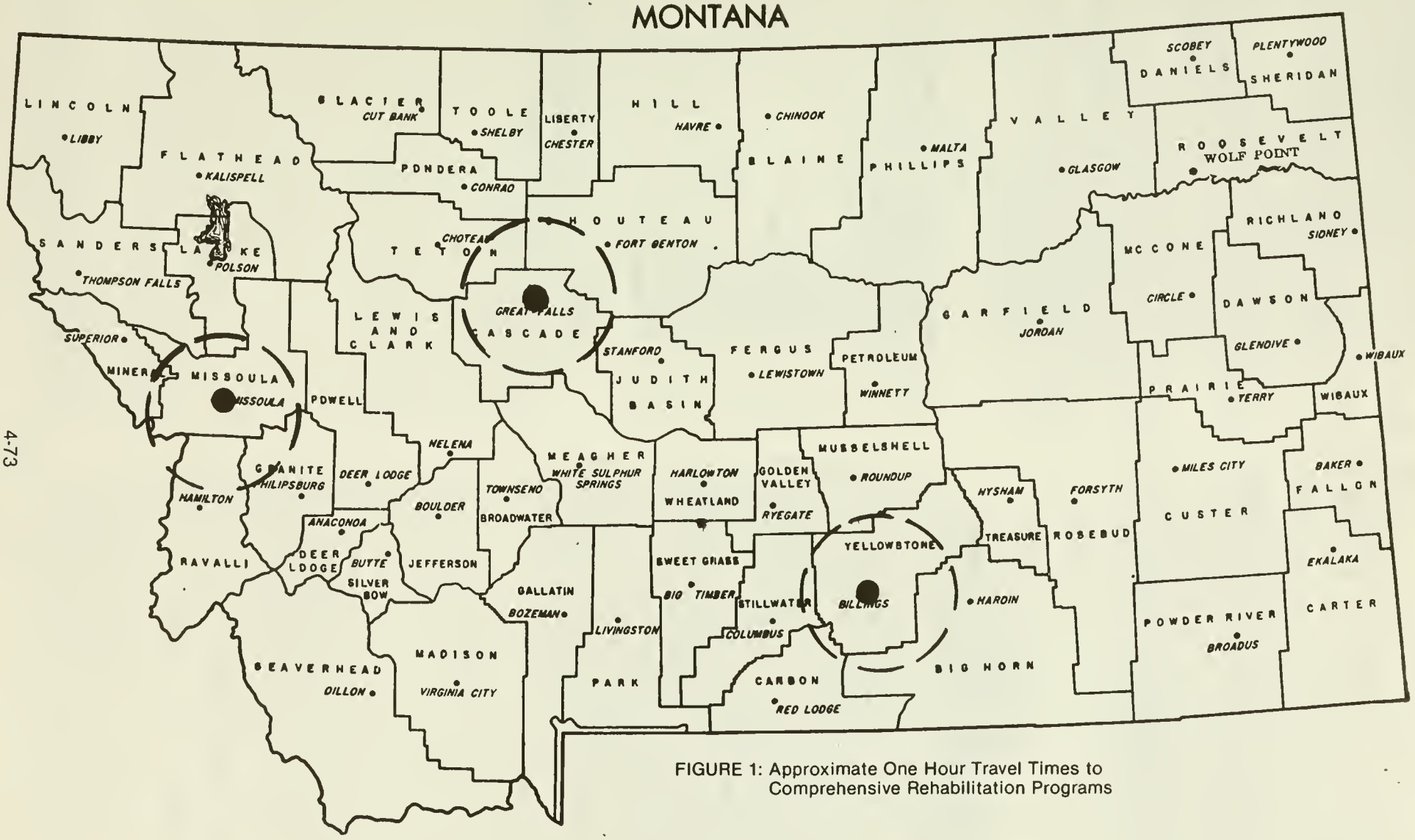


FIGURE 1: Approximate One Hour Travel Times to Comprehensive Rehabilitation Programs

-One Hour Travel Times (50 miles)

REFERENCES

1) Standards Manual for Rehabilitation Facilities, 1976, Commission on Accreditation of Rehabilitation Facilities, p. 7.
2) Op. Cit., p. 7.
3) University of Utah Rehabilitation Center, Salt Lake City, Utah.
4) The Killers and Cripplers, Facts of the Major Diseases in the United States Today, National Health Education Committee, 1976, p. 185.
5) Op. Ct., p. 200
6) Chronic Conditions Causing Activity Limitation, U.S. 1969-1970. U.S. Department of H.E.W., Washington, D.C.
7) John Steinle and Associates, and the MHSA Task Force input on April 25, 1979.

APPENDIX I
RECOMMENDED REVIEW CRITERIA: COMPREHENSIVE REHABILITATION PROGRAMS

1. The licensing of new or additional beds for a comprehensive rehabilitation program should be commensurate with the bed need estimates in Section 3.1. Requests for more than the estimated number of beds must be justified according to the projected demand for rehabilitation services in the service area and high occupancy rates for any existing rehabilitation beds.

2. Before additional beds are dedicated to a rehabilitation program, the existing beds used for rehabilitation services should be occupied at least 80 percent of the time in the respective catchment area. An 80 percent occupancy rate should be documented for at least a three month reporting period.

3. If a proposed rehabilitation program is requesting rehabilitation beds in an area already served by an existing program, the existing program should be operating at a minimum of 80 percent occupancy in their rehabilitation beds.

4. Any facility having or proposing to have licensed beds for comprehensive rehabilitation services should comply with either CARF (Commission on the Accreditation of Rehabilitation Facilities) or JCAH (Joint Commission on Accreditation of Hospitals) standards for rehabilitation programs within the time periods permitted by the accrediting organization, in addition to the standards prescribed by the Montana Facilities Licensing and Certification Bureau.

5. Responsibility for medical direction or supervision of the rehabilitation programs/services should be vested in a physician member of the medical staff who, on the basis of training and experience, is knowledgeable in the rehabilitation services offered.

6. Any facility proposing to have licensed beds for a comprehensive rehabilitation program should have the following on staff;
   1. Medical director
   2. Registered nurse with post-graduate training or experience in rehabilitative medicine
   3. Physical therapist
   4. Occupational therapist
   5. Social worker

7. Any facility proposing to have licensed beds for a comprehensive rehabilitation program should have, but not be limited to, working arrangements for the services of the following professionals:
   Psychologist
   Radiologist
   Dietician
   Pharmacist
   Speech therapist
   Audiologist
   Prosthetist and/or orthotist
   Urologist
   Orthopedist
   Cardiologist
   Neurosurgeon
   Neurologist

8. Agreements should be established between the facility offering the rehabilitation program and other agencies or organizations to provide any temporary living arrangements and/or home health care services to the rehabilitation patients and their families, if necessary.

4.7

ALCOHOL AND DRUG ABUSE SERVICES

GOAL:

To establish and maintain means whereby the appropriate resources may be focused fully and effectively upon the problems of alcoholism and drug dependence.

OBJECTIVES

1. To continue to provide through 1983 a comprehensive means of assessing the needs of Montana for substance abuse services and develop and update an annual plan to meet identified needs.
2. To contine to support through 1983 special emphasis programs (for women, elderly, rural citizens, Indians and youth) and to continue to assess the needs of special populations and design activities to meet those needs.

LONG RANGE ACTIONS

1. In 1982 implement the counselor certification system and begin certifying counselors. All counselors must meet certification requirements by June 30, 1983.
2. Through 1981 provide training and education courses for a minimum of one hundred participants based on certification requirements.
3. Support through 1982 working relationships between the white and Native American populations for the development of improved planning and services for all Montanans.
4. By June of 1981 encourage the Department of Health and Environmental Sciences to develop appropriate facility licensing standards for Alcohol Intermediate Care and Transitional living facilities.
5. By fiscal year 1982 data should be made available at the Department of Instituitions to determine cost per client for Drug and Alcohol Services.

1.0 BACKGROUND

1.1 SERVICE DEFINITION

This health plan component summarizes the state plan for Alcohol and Drug Abuse Prevention, Treatment and Rehabilitation prepared by the Alcohol and Drug Abuse Division (ADAD), Department of Institutions, and adopted by the State Health Coordinating Council (SHCC) on September 18, 1978. While the original plan is intended to guide the administration of the overall state program, this component is designed to assist the MHSA in future reviews. Approximately 10 percent of the program monies available to those programs are subject to MHSA review. All of this is federal funding and includes:

— Alcohol Demonstration Programs
— Alcohol Research Programs
— Alcohol Training Programs
— Drug Abuse Research Programs
— Drug Abuse Training Programs
— Alcohol Community Service Programs
— Drug Abuse Demonstration Programs
— Drug Abuse Education Programs

The MHSA has review and approval authority over the first five programs and A-95 review and comment over the latter three.

In Montana, both the alcohol and the drug abuse programs are administered by the Alcohol and Drug Abuse Division of the Department of Institutions. The responsibilities of the Alcohol and Drug Abuse Division include:

1) Developing the state plan for Alcohol and Drug Abuse Prevention, Treatment and Rehabilitation Programs.
2) Providing technical assistance to local programs to ensure compliance with state and federal guidelines.
3) Dispersing funds to local agencies according to the priorities and needs outlined in the state and county plans, along with other legislative priorities.
4) Gathering and analyzing statistical data from all state approved treatment facilities.
5) Evaluation and monitoring of alcohol and drug programs.
6) Developing an alcohol and drug abuse education curriculum.
7) Establishing standards for and certifying counselors (to be implemented in FY 1981).
8) Providing relevant training opportunities for substance abuse counselors.

In these efforts the ADAD is guided by the Montana Advisory Council on Alcohol and Drug Dependency which is appointed by the Director of the Department of Institutions and approved by the Governor.

1.2 SERVICES AND SETTINGS

At the local level, the types of patient services offered may include:

Detoxification Care: Services required for the treatment of persons intoxicated or incapacitated by alcohol and/or drugs. Detoxification involves clearing the system of alcohol and/or drugs and enabling individual recovery from the effects of intoxification. These services include screening of intoxicated persons, the counseling of clients to obtain further treatment, and referral of detoxified persons to other appropriate treatment programs. Medical detoxification refers to short-term treatment in a medical setting with 24-hour supervision, while non-medical detoxification refers to short-term treatment in a social setting with 24-hour supervision.

Inpatient Care: Treatment for person requiring 24-hour supervision in a hospital or suitably equipped medical setting. Services include medical evaluation and health supervision, alcoholism education, organized individual, group, and family counseling; discharge referral to necessary supportive services; and a client follow-through program after discharge.

Intermediate Care: Treatment for persons requiring 24-hour supervision in a community based residential setting. Treatment includes a minimum, limited medical evaluation, alcoholism education, organized individual group and family counseling, opportunity for relearning social skills, discharge referral to necessary supportive services, and discharge client follow-through.

Short-term Intermediate Care: Less than 30 days of treatment

Long-term Intermediate Care: Thirty days or more of treatment

Transitional Living (Half-way House): A non-medical residential treatment facility in a community based setting. These facilities provide a transitional phase for individuals who have recently received alcoholism detoxification, inpatient or intermediate care services and require a moderately structured living arrangement. Services provided include

counseling services (1-1 and group), alcoholism education, social and recreational activities. These individuals are encouraged to seek vocational rehabilitation, occupational training, education and/or employment as soon as possible.

Outpatient Care: Services provided on a regularly scheduled basis to clients residing outside a program. Services include crisis intervention, screening and evaluation, individual, group and family counseling, alcohol education, referral services, employment assistance and follow-up.

Together these services comprise a system of services for the alcohol and drug abuser. This system is depicted schematically in Figure 1.

Although Alcohol services do not flow into this continuum easily, alcohol providers try to make referrals to follow this logical progression of treatment. This is many times very difficult because individual clients enter the system with problems in varying degrees of severity. Clients can enter the system at any of the levels of care. For example, if a client is placed in transitional care and has a heavy drinking episode, he may require the services found in inpatient care or a detoxification facility.

1.3 TRENDS

Nationally, the National Institute on Alcohol and Alcoholism Administration (NIAAA) has stated its policies to be:

1. Work to make treatment resources more available, accessible and effective.
2. Work to obtain the same level of health coverage for alcoholism that other diseases now have.
3. Emphasize and promote prevention as a major strategy for reducing the incidence of alcohol abuse and alcoholism.
4. Seek a major increase in the nation's investment in research on alcohol-related problems.

Despite the intention of NIAAA, indications are that there will be less money available from the Federal government in coming years for substance abuse programs.

Trends for substance abuse programs in Montana would best be described as taking on a more county-community focus. With the development of county plans, Multi-county outpatient programs, emphasis on collection of fees and county specific funding programs, the more localized approach to provide services is coming into place.

2.0 CURRENT SITUATION

2.1 AVAILABILITY

The estimated number of persons in each region (subarea) needing alcohol and drug abuse treatment services is presented in Table 1. These estimates were developed by the Alcohol and Drug Abuse Division of the Department of Institutions.

The estimated number of alcoholics and alcohol abusers is based upon the assumption that 10.5 percent of non-Indians and 70 percent of the Native Americans are in need of alcohol treatment services. The Indian estimate was originally made in a study by the Montana United Indian Association. The proportion of alcohol abusers in the general population is assumed to be higher than the national average (7.0 percent) because of the high level of beer and alcohol consumption in the state.

The estimates of the number of drug abusers is based upon the National Institute for Drug Abuse methodology. Data from the Southwestern Montana Drug Program clients is used and extrapolated for the rest of the state.

Other indicators of the magnitude of alcohol and drug problems in Montana are:

- In 1978 and 79, 169 people in Montana died of cirrhosis of the liver (in 103 cases, the cause of death was classified as alcohol cirrhosis of the liver).
- Forty-eight (48) percent (131 out of 271 of the people killed in automobile accidents in Montana during 1978 were considered intoxicated; fifty-five (55) percent of the drivers killed had been drinking.
- In 1977, eight persons died in Montana from accidental poisoning by drugs, medications, and other solid and liquid substances. (Thirteen people died from these same causes in 1976).

The people treated in Montana for these two problems have some similarities. A large proportion of them, for instance, are young. Table 2 illustrates some of the personal characteristics of persons receiving treatment. Profiles of these four groups include:

- A typical client of a local alcohol treatment program is probably male (77 percent), unemployed (68 percent), without a family (68 percent were divorced, separated or single), 32 percent between the ages of 31 and 44, 27 percent between 45 and 64. Twenty-two (22 percent of the clients treated were Native Americans).
- Persons admitted to DWI Court schools tend to be young (40 percent under 30), white (7 percent Native Americans), and employed (25 percent unemployed) males (87 percent).
- Clients using drug treatment centers were usually under 25 years of age (72 percent) and male (70 percent). Eleven percent were Native Americans. Thirty percent of the admissions abused amphetamines.
- Eighty-seven (87) percent of the persons arrested for drug related offenses in 1979 were under 25 years of age (30 percent were under 18). Seventy (70) percent of those under 25 were arrested for possessing and/or selling marijuana.

2.2 ACCESSIBLITY

Formal inpatient services for the alcoholic are currently provided by five hospitals in the state. These are Frances Mahon Deaconess (Glasgow), Holy Rosary (Miles City), Silver Bow General (Butte), Galen (Galen) and Missoula General (Missoula). The current capacity utilization levels and projected budgets of each are listed in Table 3. With the exception of Comp Care Units located at Silver Bow General Hospital and Park Place Nursing Home, all of the facilities have been organized as nonprofit organizations. None of these facilities have been reviewed by the MHSA as recipients of federal grants.

Table 4 lists each of the detoxification, intermediate care and outpatient programs for each region (subarea) in the state. It also lists the city in which they are located, the number of clients admitted in FY 1979, the proportion of these completing the program; and their 1980 projected budget. The completion rate is intended to be a measure of the effectiveness of a program. The proportion of clients who receive the facility's full regimen of services cannot be compared from one program to another because the services differ from facility to facility. One would expect that the completion rate would be higher for a detoxification program than for a comprehensive program of intermediate care because of the longer time period involved.

Most of these programs are autonomous and operate informally with other facilities for services they do not provide directly. The trend is to develop more comprehensive services through multi-county catchment areas.

Drug Services

Figure 3 and Table 5 show the programs specifically dedicated to drug abusers. All are drug-free programs, that is, treatment emphasis is on counseling. There are no maintenance programs where the patient is stabilized with methadone or other medications.

Region (Subarea)	Estimated Total Population (1976)	Estimated Number Alcohol Abusers[1]	Estimated Number Drug Abusers[2]
I (Eastern)	99,700	14,127	97
II (North Central)	147,100	19,080	143
III (South Central)	151,200	18,440	147
IV (Southwestern)	179,800	16,473	182
V (Northwestern)	174,700	18,443	210
	752,500	86,563	779

1) Based upon 1975 population estimates. The Alcohol and Drug Abuse Division of the Department of Institutions has assumed that 70 percent of the Indians and 8.5 percent of the non-Indians in Montana are in need of alcohol treatment services.

2) Estimate based upon admission statistics for 15-25 year olds to Southwestern Montana Drug Program (Region IV and Missoula County in Region V). The regional estimates have been pro-rated by MHSA staff based upon total 1976 population estimates.

TABLE 1 - Estimated Number of Alcohol and Drug Abusers in Montana

Source: Montana Comprehensive Plan for Alcohol and Drug Abuse Prevention, Treatment and Rehabilitation, July 1, 1979 to June 30, 1980

LEVELS OF CARE IN THE TREATMENT SYSTEM

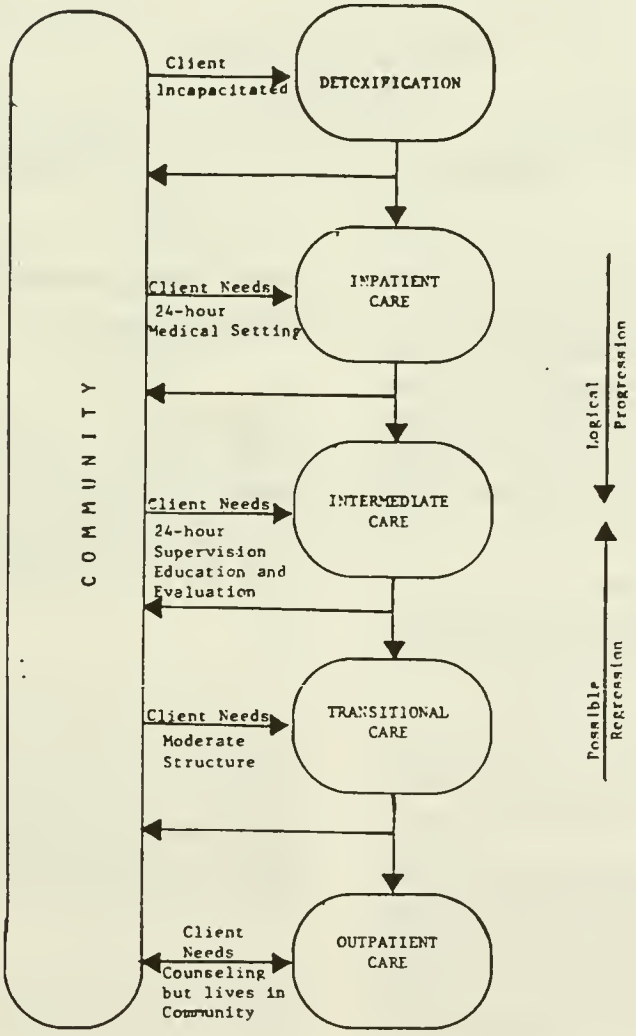


Figure 1 - Levels of Care in the Alcohol Treatment System and movement of client through that system.

Personal Characteristic	Alcohol Treatment Centers	Court Schools[4]	Drug Treatment Clients	Drug Arrests[3]
Under 24 years of age	25%[1]	34	72%	86.2%
Divorced, separated or single	63%	61	Not Available	Not Available
Unemployed	68%	25	"	"
Native Americans[2]	22%	7	11%	"
Male	77%	87	70%	"
Total number of persons	5596	1239	677	1482

1) Sixty-three (63) percent of the persons treated were between 31 and 64 (32 percent were between 31 and 44, and 31 percent were between 56 and 64).

2) Indians constitute roughly four percent of Montana's population.

3) Based upon 1977 data.

4) The DWI referrals are referrals from the courts which require participation in an approved program. Judges have the discretion of allowing the offender to attend any program which offers the standard curriculum provided by the state. These sessions consist of classroom work five evenings, each two hours in length. The fee is $50 which is paid to the program by the client.

TABLE 2

Profiles of Persons with Known
Alcohol or Drug Abuse Problems
for Calendar Year 1979

Source: Montana Comprehensive Plan for Alcohol and Drug Abuse, Prevention, Treatment and Rehabilitation, July 1, 1980 to June 30, 1981.

Satellites in Anaconda, Butte and Helena are state operated clinics administered by the Montana Department of Institutions, Alcohol and Drug Abuse Division. Satellites in Bozeman and Missoula were contract affiliates and considered part of the Southwestern Montana Drug Program, (SMDP). With conversion of SMDP to a Statewide services grant, there are nine outpatient drug free clinics in the following cities: Anaconda, Butte, Helena, Bozeman, Missoula, Billings, Great Falls, Ronan and Kalispell. Clinics in Butte, Anaconda and Helena will continue to be administered by ADAD.

Lighthouse is a state operated residential treatment facility located in Galen, Montana. Lighthouse is a component of Galen State Hospital, which is part of the Department of Institutions, Mental Health and Residential Services Division. Its catchment area constitutes the entire state.

The remaining three drug programs are located within the state's correctional facilities. These programs receive supplemental funding through special grant monies from the Montana Board of Crime Control.

2.3 COST

The Division of Alcohol and Drug Abuse, Department of Institutions, is designated as the state agency to administer the drug and alcohol programs within the state. Table 3 shows the FY 1980 budgets of these programs. The alcohol monies are roughly four times greater than the drug program funding. About $479,011 is used by the agency to perform its functions; the rest is distributed to the various alcohol and drug programs to provide direct services.

3.0 FUTURE RESOURCE REQUIREMENTS

3.1 AVAILABILITY

Utilizing data on first admissions, seven percent of the alcohol abusers in Montana have been served in 1979. It is anticipated that this level will be maintained, but not appreciably increased in the next five years. The bulk of the alcohol program monies come from the state liquor tax and individual counties now are responsible for the use of these funds for alcohol programs in their areas, subject to approval of a county plan by the Alcohol and Drug Abuse Division.

The Alcohol and Drug Abuse Division will follow the legislative priority of using its discretionary monies to fund programs and counties that do not have sufficient operational funds to continue their programs. In rural areas, priority will be given to multi-county programs. The intent of this policy is to support existing programs rather than establish new ones. It was the past Legislature's intent to limit the number of new alcohol programs.

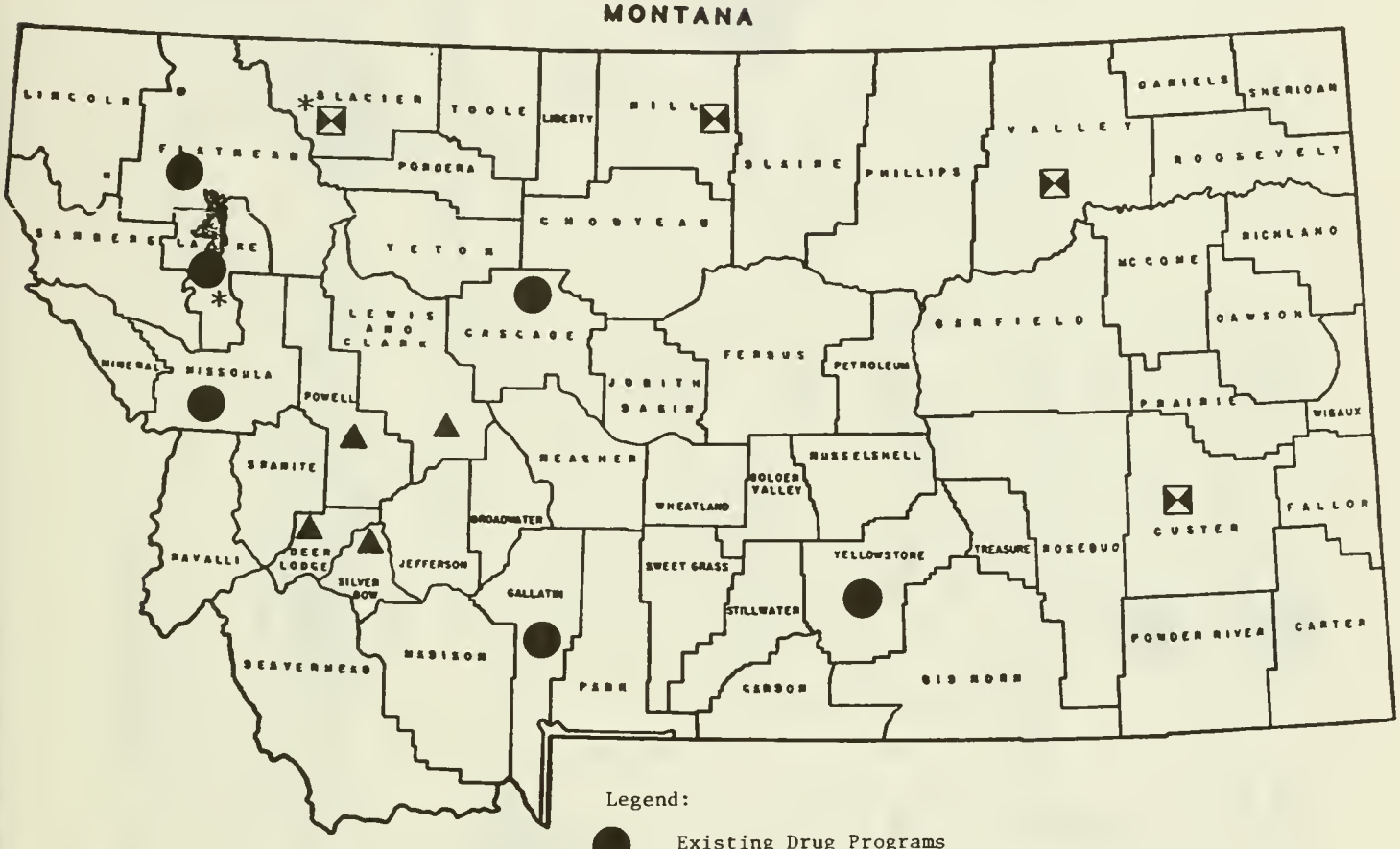
Additonal resources may be available from the federal government in the future to provide services to special population groups (women, elderly, Indians, youth and rural residents). The ADAD will continue its efforts to support services to special populations.

3.2 ACCESSIBILITY

The Alcohol and Drug Abuse Division intends to continue implementing the Federal Funding Criteria with a static caseload of three hundred fifty (350) outpatient drug-free clients. By operating at full capacity, requests for additonal funding from the State Legislature may be justified as can the need for additonal treatment slots.

ADAD has proposed in its statewide service grant application to obtain forty (40) additional outpatient drug-free treatment slots from the National Institute for Drug Abuse for initiation of drug services on the Flathead Indian Reservation. These slots would be contracted to the Flathead Reservation Comprehensive Alcohol Program for implementation of drug abuse services.

In FY 82 and 83, expanison is planned in North Central and Eastern Montana as per Figure 2.



Legend:

- ● Existing Drug Programs
- ▲ State Operated Drug Clinics and Lighthouse Residental Program at Galen
- ⊠ Planned Expansion (FY 82-83)

* Reservation Programs

Figure 2 - Location of Present and Planned Drug Programs

3.3 COST

Facility specific 1980 operational budgets for intermediate and outpatient alcohol treatment programs are depicted in Table 4. The fiscal year 1981 alcohol and drug abuse program budgets administered by the Department of Institutions are depicted in Table 6.

4.0 GENERAL ANALYSIS

4.1ALTERNATIVES AND ISSUES

The Alcohol and Drug Abuse Division implemented in January of 1980 a new reporting system which will provide selected measures of effectiveness for alcohol programs throughout the state. These statistics are to be based upon follow-up surveys of alcohol clients 180 days after discharge. They include such items as employment and educational status, income, housing stability and the amount of current substance usage.

Name of Program	Number of Beds	Percent of Utilization	Clients Admitted	% Completing Program	Total Projected Budget FY 80
Francis Mahon Deaconess Hospital Chemical Dependency Program (Glasgow)	50	101	466	81	$ 525,997
Holy Rosary Hospital (Miles City)	14	38	60	86	267,451
Comp Care Silver Bow General Hospital (Butte)	18	84	276	66	N/A
Galen State Hospital (Galen)	70	95	894	77	1,220,021
Missoula General (Missoula)	12	7	164	18	N/A
Montana Deaconess Medical Center (Great Falls)	16	0	0	0	25,000 *
Comp Care Park Place Nursing Home (Great Falls)	16	0	0	0	10,000 *

TABLE 3

Inpatient Alcohol Treatment
Number of Beds and Percent of Utilization
of Those Beds in 1979

* Certificates of Need were issued for these amounts

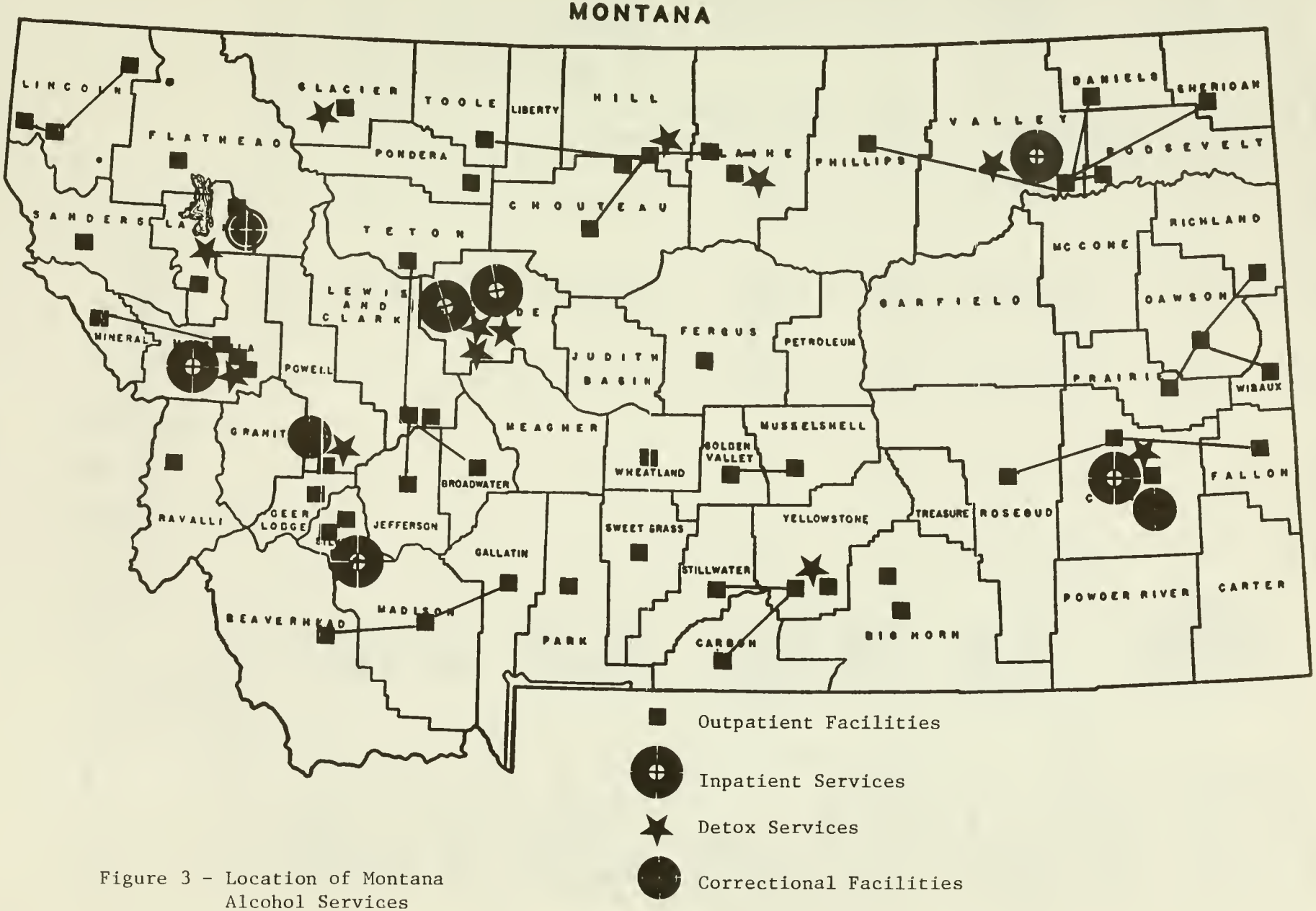


Figure 3 - Location of Montana Alcohol Services

Program Name	City	Detox	Intermediate Care	Outpatient Care	CY 79 Clients Admitted	Calendar Year 79 Completion % Rate	FY 1980 Fed. Funds Projected	1980 Total Budget
Region I (Eastern)								
District I	Plentywood, Glasgow and Satellites			X	112	22	$ -	$ 83,750
District II	Glendive and Satellites			X	117	45	-	$ 75,988
District III	Forsyth, Miles City and Satellites			X	171	37	-	$ 103,763
Northern Cheyenne*								
Fort Peck *								
Subtotal								
Region II (North Central)								
Cascade County	Great Falls	X			345	77	-	$ 170,429
Hill-Top	Havre	X	X	X	205	22	$ 28,148	$ 221,765
Providence	Great Falls		X	X	199	57	-	$ 233,444
Medicine Pine Lodge	Browning	X	X	X	85	72	$ 123,362	$ 143,421
Fort Belknap	Harlem	X	X	X	83	22	-	$ 126,789
Rocky Boy*	Box Elder			X	N/A	N/A	-	$ -
Subtotal								
Region III (South Central)								
Wheatland Family	Harlowton			X	59	19	-	$ 14.103
Central Montana	Lewiston and Satellites			X	53	33	-	$ 52,916
Sweet Grass County	Big Timber			X	8	50	-	$ 14,915
South Central MHC	Billings and Stillwater			X	223	26	-	$ 18,803
Carbon County	Red Lodge			X	6	33	-	$ 16,475
Rimrock	Billings	X	X	X	399	69	-	$ 409,901
Big Horn	Hardin			X	72	10	-	$ -
Crow	Hardin	X					-	$ 81,676
Musselshell	Roundup			X			-	$ 23,334
Subtotal								
Region IV (Southwestern)								
Southwest Montana MHC	Helena			X	287	29	$ 94,111	$ 289,840
Lewis and Clark	Helena		X	X	79	26	-	94,654
Powell County	Deer Lodge			X	8	13	-	43,196
Butte Indian	Butte		X	X	51	10	39,382	69,784
Silver Bow County	Butte			X	94	57	-	76,000
Deer Lodge Co.	Anaconda			X	8	8	-	39,274
Park County	Livingston			X	48	16	-	56,260
Subtotal								
Region V (Northwestern)								
Ravalli County	Hamilton			X	88	30	-	36,063
Lincoln County	Libby			X	104	38	-	75,920
Sanders County	Thompson Falls			X	15	19	-	27,681
Alcohol Services Center	Kalispell			X	164	22	-	175,671
Flathead Alcohol Center	Ronan	X	X	X	164	29	398,000	455,000
Missoula Indian	Missoula		X	X	34	13	67,500	78,732
RCEPD - Missoula	Missoula			X	64	16	-	
Subtotal								
TOTAL					3345		$ 750,503	$3,352,347

1) Totals include inpatient facilities

* Not a state approved program.

TABLE 4

Intermediate and Outpatient
Alcohol Programs, Federal Funding and Total Budgets

Source: Reporting and Evaluation Bureau, Alcohol and Drug Abuse Division.

	Types of Services Provided		Number Clients Admitted 1979	Client Capacity	Percent Utilization[3]	Cost/Slot
	Residential	Outpatient				
Southwestern Montana						
Drug Program						
- Helena		X	80	58	84%	-
- Butte		X	148	78	84%	-
- Anaconda		X	55	38	84%	-
- Missoula		X	73	58	100%	-
- Bozeman		X	49	68	100%	-
Lighthouse (Galen)	X		52	15	100%	-
Ronan[1]		X	21	20	56%	-
Rimrock Foundation (Billings)		X	88	28	100%	-
Great Falls[2]		X	6	20	15%	-
Correctional Facilities						
- Swan River			40			
- Pine Hills			33			
- Montana State Prison			32			
			677			$1,816

[1]Started August of 1979

[2]Started November of 1979

[3]June-July 1979

TABLE 5

1979 Program Characteristics of Drug Programs in Montana

Funding Source	Budget FY 1981
Alcohol	
State Public	$1,896,453
Local Public	1,336,379
Sub Total	$3,232,832
Federal	396,199
TOTAL ALCOHOL FUNDS BUDGETED	$3,629,031
Drug Program	
State Revenue	$ 357,892
Federal Funds (all)	569,581
TOTAL DRUG FUNDS BUDGETED	$ 927,473
TOTAL ALCOHOL AND DRUG MONIES AVAILABLE	$4,556,504

TABLE 6

Annual FY 1981 Alcohol And Drug
Abuse Program Budgets Administered
by the Department of Institutions

Source: FY 1981 State Plan

RECOMMENDED REVIEW CRITERIA, DRUG SERVICES

1. For continuation grants, (Applications for the second and each successive year of federal funding), copies of the most recent financial report should be submitted with the application and made available at the MHSA public review.
2. Drug services should be reimbursed through a fee-for-service schedule, based on the client's ability to pay. Application for a Certificate of Need from the State Department of Health, Bureau of Health Planning and Resource Developement, should be obtained prior to the development or expansion of drug services which are hospital or nursing home based. The award of a Certificate fo Need should be based on a demonstrated community need for the service, avoidance of unnecessary duplication or similar health services, and demonstrated financial feasibility.
3. Free-standing units making application for Federal funds should request a review application for the Proposed Use of Federal Funds from the Montana Resource Development Bureau, the Department of Institutions, and the Montana Health Systems Agency.
4. Emergency drug services should be available in each region on a 24-hour, seven day-per-week basis.
5. To make drug services more accessible to the patient, programs should be regionalized with satellite counselors providing services to the outlying communities.
6. Provisions should be made for the coordination of organizations, agencies, and institutions providing drug services.
7. Aftercare should be provided to the patient when he is released from a treatment center to strengthen the rehabilitation process.
8. The professional staff of alcohol and drug programs should be certified. Certification of Counselors should be based on training, education, and experience. Those not meeting specific requirements should be excluded from the delivery system or placed on a provisional status under the supervision of a certified staff member, where he/she can obtain the skills necessary to upgrade himself/herself to meet certification. At the present time, certification of drug and alcohol counselors in Montana is mandatory by 1983.
9. Treatment plans should be tailored to meet the needs of each individual entering treatment.
10. Any new drug treatment programs should be affiliated with an established drug program or state approved alcohol program.

RECOMMENDED REVIEW CRITERIA, FEDERAL ALCOHOL GRANTS

1. For continuation grants, (applications for the second and each successive year of federal funding), copies of the most recent financial report should be submitted with the apllication and made available at the MHSA public review.
2. Application for a Certificate of Need from the State Department of Health, Bureau of Health Planning and Resource Development, should be acquired prior to the development or expanison of alcohol services that are hospital or nursing home based. Alcohol programs which are free standing do not have to apply for a Certificate of Need. The awarding of a Certificate of Need should be based on a demonstrated financial feasibility. For maximum efficiency, intermediate care beds should have an occupancy rate of 80 percent.
3. Emergency alcohol services should be available in each region on a twenty-four hour, seven day-per-week basis.
4. Prevention/education, outpatient, and follow-up capability should be available in all regions and be based at the community level.
5. To make alcohol services more accessible to the patient, programs should be multi-county with satellite counselors providing services to the outlying communities.
6. Provisions should be made for coordination of the organizations, agencies, and institutions dealing with the alcoholic (for example, law enforcement, Mental Health Centers, hospitals, alcohol programs, emergency medical services, etc.).
7. Follow-up should be provided to the patient after discharge from the program to strengthen the rehabilitation process. Therefore, provisions should be made for a continuum of care prior to an individual being released from an alcohol facility. In the event an individual will be residing in another area after he is released, an appropriate referral network should be operating to ensure continuity.
8. Every effort should be made to ensure that the family is involved in the overall treatment process.
9. Alcohol service programs should develop treatment plans tailored to meet the needs of each individual involved in the process.
10. Demonstration grants for alcohol services should contain tangible, measureable goals and objectives.
11. The professional staff of alcohol and drug programs should be certified. Certification of Counselors should be based on training, education, and experience. Those not meeting specific reguirements should be excluded from the delivery system or placed on a provisional status under the supervision of a certified staff member, where he/she can obtain the skills necessary to upgrade himself/herself to meet certification. At the present time, certification of drug and alcohol counselors is mandatory by 1983.

4.8

MENTAL HEALTH SERVICES

GOAL:

To preserve and maintain the orderly development of a unified and integrated statewide mental health service delivery network which would include both public and private organization and individuals serving the mentally disturbed or disabled.

OBJECTIVES:

1. **By 1985, the Community Mental Health Centers, private practice mental health providers, Warm Springs State Hospital, Center for the Aged, and county program activities should be coordinated into a mental health network to provide care and treatment for the mentally ill and to encourage efforts toward the prevention of mental illness, including quick response outpatient services.**
2. **By 1985, mental health manpower within each of the 5 Governor's Planning regions of Montana shall be increased to include at least one psychiatrist and at least one-half the national per capita average of all other mental health team members (psychiatrists, licensed paychologist, psychiatric social worker, psychiatric nurse, other support clinical workers).**

LONG RANGE ACTIONS

1. **By 1982, the Department of Institutions, Mental Health and Residential Services Division shall develop a comprehensive, fair, and adequate long-range funding formula to ensure the continued existence of mental health delivery services on the community level.**
2. By 1982, there will be a comprehensive plan for the training and education of Montanans in mental health manpower shortage areas.
3. **By 1982, the Manpower Project of the Department of Institutions should improve coordination with both public and private agencies resulting in policy agreements impacting productivity, regulation, utilization, deployment, retention and evaluation of mental health personnel.**
4. **By 1982, there will be a comprehensive prevention plan available to all Montanans through satellite mental health centers which will include, but not be limited to such modalities as parent training, behavioral modification, community skills and dealing with stress in the environment.**
5. **By 1983, the Department of Institutions should present to the state legislature a proposal for the development of residential services for emotionally disturbed children.**

1.0 BACKGROUND

1.1 SERVICE DEFINITION

The purpose of this health plan component is to summarize the state plan for mental health services prepared by the Mental Health and Residential Facilities Division of the Department of Institutions and adopted by the State Health Coordinating Council (SHCC) on September 3, 1979. The use of this Health Systems Plan component will differ from the state plan in that the Montana Health Systems Agency will use the component to review mental health grants in the state and to establish MHSA policy toward the use of National Health Service Corps mental health personnel in the state.

The following programs are reviewable by the Montana Health Systems Agency:

- — Mental Health — Community Mental Health Centers
- — Mental Health — Hospital Staff Development Grants
- — Mental Health — Hospital Improvement Grants
- — Mental Health Training Grants
- — Mental Health — Children's Services

In FY 1979, $1,671,081 of federal funds were awarded under these programs to Mental Health Agencies in Montana.

On April 13,1976, Governor Thomas L. Judge designated the Department of Institutions (DOI) as the single state authority for the administration and supervision of the Montana Mental Health Program. This authority is delegated to the Mental Health and Residential Facilities Division. In this capacity, the Division:

1. Maintains the authority and responsibility for preparation of the State Mental Health Services Plan.
2. Monitors achievements and objectives of mental health programs.
3. Monitors, for the Federal government, expenditures of Federal funds received for mental health administration and program operations.
4. Provides supervisory authority over the State's Residential Facilities — Boulder River School and Hospital, the Center for the Aged, Eastmont Training Center, Galen State Hospital, the Veterans' Home, and Warm Springs State Hospital. (Only Warm Springs State Hospital and the Center for the Aged are considered to be part of the Mental Health System and are addressed in the 1980 Plan.)
5. Provides liaison for continued deinstitutionalization through its community support unit within the Division.
6. **Develops personnel training strategies to improve the mental health system.**

Besides the State Agency, the system of delivering mental health services has the following components:

- — Psychiatrists, Psychologists and Professional Social Workers in independent practice,
- — The Five Regional Community Mental Health Centers,
- — The Acute Care General hospitals (especially, the four with designated psychiatric units), and
- — The two long-term state operated inpatient facilities (Warm Springs State Hospital and the Montana Center for the Aged).

The 1980 State Plan for Mental Health Services primarily addresses activities within the Division, Community Mental Health Centers and the two inpatient facilities. Psychiatric Manpower is addressed superficially, being limited to the Health Systems Agency's recommendations for the designation of Psychiatric Shortage Areas. Acute inpatient facilities for psychiatric patients has been addressed in a separate component of this Plan.

1.2 SERVICES AND SETTINGS

Community Mental Health Centers were established following national legislation in 1965. Over the years, five Montana regional centers evolved. All are private, non-profit corporations receiving federal, state, and local funding through con-

tracts from the Department of Institutions. All programs operate a network of satellite offices within their service areas. Each center is required to provide or arrange for the following services:

- — Inpatient
- — Outpatient
- — Emergency
- — Partial Hospitalization and Day Care
- — Consultation and Education
- — Children's Services
- — Services for the Elderly
- — Screening
- — Follow-up Care
- — Transitional Half-way Houses
- — Services for the Treatment and Prevention of Alcoholism
- — Treatment and Prevention of Drug Addiction and Abuse
- — Provision of Comprehensive Services to Minority Groups

The Community Mental Health Centers are the major providers of services for patients discharged from state institutions since the deinstitutionalization program was implemented.

Warm Springs State Hospital was one of the major facilities affected by deinstitutionalization. In recent years, the role of Warm Springs has changed in the following ways:

- — Patient care is changing from custodial to therapeutic care.
- — The concept of milieu therapy, emphasizing the early return of patients to the community whenever possible, is being utilized.
- — Patient care is improving with the use of individualized patient treatment plans and frequent, regular utilization reviews.
- — Improvements in preadmission screening and diagnostic evaluation is reducing inappropriate placement of persons with mental illness.

The Center for the Aged is a long-term, skilled and intermediate mental health care facility owned and operated by the Department of Institutions. Its role is to provide a less restrictive, home-like environment to its residents. All residents must be referrals from Warm Springs or a mental health center, ambulatory and over 60 years of age.

1.3 TRENDS

The Federal Mental Health Systems Act of 1980 will determine the course of Mental Health services throughout the nation through the years 1982, 1983 and 1984. One of the significant changes the act will bring is the possible designation of a single state agency (Department of Institutions) as exclusive agent to review certain local applications for federal funding. All approved applications will be ranked by the state and transmitted to HHS. Health Systems Agency staff will be serving on a task force to help develop procedures for Health Systems Agency reviews. It is thought that the Health Systems Agency will be reviewing on a statewide basis a single application from the state which will be a compilation of local applications.

Table I is a breakdown of federal funding allocations from the Mental Health Systems Act.

Existing Law Reauthorization
FY '81 (in millions)

Preparation	$ 1.0
New CMHCs	37.0
Consultation and Education	15.0
Financial Distress	20.0
Rape Research	6.0

Mental Health Systems Act Authorizations

	FY '82	FY '83	FY '84
New CMHCs	$30.0	$35.0	$40.0
Continuing CMHCs	ss*	ss*	ss*
Chronically Mentally Ill	45.0	50.0	60.0
Severely Disturbed Children and Adolescents	10.0	12.0	15.0
Elderly	12.0	14.0	16.0
Other Priority Populations	18.0	21.0	24.0
Non-Revenue Producing Activities	30.0	35.0	40.0
Prevention	6.0	7.0	8.0
Linkage	15.0	17.5	20.0
Exclusive Contract Grants	3.0	4.0	5.0

* Such sums as necessary

TABLE I
Mental Health Systems Act Authorizations

2.0 CURRENT SITUATION

Incidence, Prevalence and Mortality

The relationship between the existence of mental disorders in the population and the need for health services by individuals with these disorders has not been clearly established. In recent years a number of attempts have been made to assess the need for mental health services in populations directly through surveys. None of the survey instruments used, however, has gained general acceptance as "standard", because the studies using them have produced such vastly different results. For this reason, the proportion (percent) of the general population who need mental health services cannot be accurately determined.

The Mental Health Division of the Department of Institutions conducted a survey to identify "high-risk populations." This determination was based on weighted demographic, social and economic indicators in each region. These indicators may correlate with admission rates to mental health facilities. The indicators are:

— percent of males 16 years and over who are in a low occupation status
— percent of families below poverty level
— youth dependency ratio (persons under 18 years per 100 persons 18-64)
— Aged dependency ratio (persons 65 and over per 100 persons 18-64 years)
— percent of household population in housing units with 1.01 or more persons per room.
— percent of household population who moved into present residence (recent moves)
— Indian population as a percent of total catchment area population.

Table II shows these percentages, and based on these percentages, a ranking of needs by region. Using the summary score, Region I (Eastern) shows the greatest need for mental health services, followed by Regions II (North Central), V (Northwest), III (South Central) and IV (Southwestern).

Regions	Males in Low Occupation Status %	Rank	Family Below Poverty Level	Rank	Youth Dependency Ratio %	Rank	1.01 + Persons Per Room %	Rank	Recent Movers %	Rank	Indian Population %	Rank	Overall Rank
I (Eastern)	30.8	5	15.1	1	19.8	1	21.7	1	23.7	5	6.9	2	1
II (North Central)	31.5	3	14.1	3	15.7	5	21.1	2	28.6	2	7.0	1	2
III (South Central)	31.3	4	14.3	2	17.5	4	17.1	5	25.6	4	3.8	3	4
IV (Southwestern)	35.6	2	11.8	5	19.4	2	17.6	4	27.2	3	0.9	5	5
V (Northwestern)	38.2	1	13.0	4	17.6	3	19.8	3	29	1	2.5	4	3

TABLE II
Ranking of Regions by need for Mental Health Services, as Determined by the Department of Institutions, Montana Department of Health and Environmental Sciences

SOURCE: Montana State Plan for Mental Health Services, Division of Mental Health and Residential Services

2.1 AVAILABILITY

Mental Health and Residential Facilities Division (DOI)

The FY operating costs for the Mental Health and Residential Services Division (DOI) is estimated to be $416,000. About six percent (6%) of this is obtained from state 314(d) federal money. In addition, the state requests five percent (5%) of all federal mental health facilities assistance funds received to assist in the administration of the state plan.

The Community Support Project is a unit within the Division to develop a statewide system of community based services for the severely mentally disordered adult. It has been funded for four years with federal and state monies. Last year the unit developed a demonstration model in the South Central Montana Mental Health Center for expanded and increased services to the chronically mentally ill. This year the model will be further refined and utilized by the Eastern Montana Mental Health Center.

The Manpower Development Unit was established upon receipt of the three year federal grant from the National Institute of Mental Health. The award for FY 78 was $152,051. The mission of the project is to improve the ability of the Montana mental health system to respond to the state's mental health needs and problems. Since the initial funding of the Mental Health Manpower Project in July 1978, there has been a shift in emphasis from education and training as a primary focus to broad manpower policy planning effecting program and policy change. In March, 1979, the unit, in collaboration with the Rocky Mountain Gerontological Center (Salt Lake City) presented a three-day workshop on aging to interested professionals.

Private Practitioners

The number of psychiatrists currently practicing in Montana is shown in Figure I of Section 3.2 (Acute Psychiatric Units). These people have congregated in the major Montana towns. Various planning studies have indicated that a psychiatrist needs a population base of at least 8,000-10,000 persons to support a practice. Some studies, especially those dealing with HMOs, estimate that 50,000 persons are needed to support a psychiatrist.

The National Health Service Corps (NHSC) assists communities and areas designated as "psychiatric shortage areas" in recuiting and placing mental health personnel. Currently, a NHSC psychiatrist is located in Missoula and a psychiatrically oriented MD internist and a psychiatric social worker are located in Lewistown. Missoula, Lewistown, Kalispell, and Miles City have all been previous NHSC psychiatric sites.

At the present time, there is no current information on the number and location of psychologists and other mental health personnel in private practice across the state. The 1978 Montana State Plan identified the mental health work force and discussed projected personnel needs, problems, priorities and goals. The 1979 Plan presented a revised description of staff employed and personnel vacancies throughout the system.

2.2 ACCESSIBILITY

Community Mental Health Centers

Figure I shows the geographic location of the comprehensive mental health centers, the satellite offices and the state mental hospital. Each of the five regions supports a comprehensive center with satellites. It also identifies those counties not currently participating in the Regional Mental Health Program.

2.3 COST

Table IV shows the 1978 utilization of the comprehensive centers by the number of people served, the estimated caseload of the center, the total funding received, and cost per client for the year 1978. The persons served is an unduplicated count of persons rather than contacts made. The

caseload count indicates services on an ongoing basis rather than evaluations or emergency contacts. The funding figure is a compilation of federal, state, and county monies, income from client payments and funds in reserve.

Inpatient and Residential Facilities

Figure 2 shows the location of the Center for the Aged, the Acute Psychiatric Inpatient Units, the Residential Treatment Facilities and the Day Treatment Centers operating in the state. The latter two are operated in conjunction with the local Regional Mental Health Center. No utilization data is available for these facilities.

Table V shows recent utilization statistics for Warm Springs State Hospital and the Montana Center for the Aged. In the last four years (1976-1979), Warm Springs experienced a drop in its average daily census of 46 percent (from 647 patients in 1976 to 303 in 1979). At the same time, its licensed capacity has also been reduced. This has been attributed to the deinstitutionalization program undertaken by the state in 1975.

The utilization of the Center for the Aged has increased. The number of patients in this facility increased from 133 in 1976 to 194 in 1979. To accommodate this increase in patient load, the facility has expanded from 146 to 199 beds.

3.0 FUTURE RESOURCE REQUIREMENTS

3.1 AVAILABILITY

The State Mental Health Plan calls for a continued orderly development of a strong statewide network of mental health services. For the forseeable future, emphasis will continue to be on deinstituionalization and on strengthening community services. To be able to do this, it is necessary to establish a stable funding base for the services being provided. In 1979, two of the five Community Mental Health Centers received federal distress grants because they are no longer eligible for regular mental health program funding.

The state plan also recognized a continued need to provide developmental and habilitation services to special population groups. These include the children, elderly and minorities.

The Community Mental Health Centers Act of 1975 stresses that a Regional Mental Health Center must devote a meaningful portion of its resources to addressing the needs of children. Services for children should include the full range of services made available by the center, appropriately geared to the needs of children at different stages of development. The plan recognizes a need for extensive coordination and collaboration with children's agencies and services throughout the state. The plan called for the development of an intensive care home for ten to twelve emotionally disturbed children in Great Falls during FY 80.

Many elderly patients are being deinstitutionalized. The Regional Mental Health Centers are responsible for their placement and treatment. This service has been funded by a contract between the Department of Institutions and the Regional Mental Health Centers. There are few formalized programs specifically for the elderly other than placing inappropriately housed patients from Warm Springs State Hospital into nursing homes, but most centers do provide transportation, include patients in day treatment, and consult with nursing homes.

The major minority group in Montana is Native American. There are seven Indian reservations. The Indian Health Service provides some mental health services on the reservations, but there is a need for more extensive services that will also cover off-reservation Indians.

During August, 1980, the State Interagency Committee on Emotionally Disturbed Children conducted a needs assessment of 200 youth service providers — the community mental health centers, group homes, social service workers, district courts, aftercare workers and private psychiatrists and psychologists — to determine the number of seriously emotionally disturbed youths under age 18 in Montana in need of more intensive treatment. One hundred forty-eight of those 200 youth service providers responded. Each was asked to provide the initals, dates of birth, and the sex of the youths listed to avoid duplicated counts.

The results, broken out by age, sex and degree of disturbance — moderate and severe — are presented in Table III.

3.2 ACCESSIBILITY

The plan also calls for an increased emphasis on consultation, public education and prevention activities. Each Mental Health Center, within the year, is to assign consultation, education and outreach activities to a specific person. The plan requires the Mental Health and Residential Services Division to initiate statewide public information activities.

With respect to mental health manpower, the Manpower Development Unit within the Divison of Mental Health and Residential Services intends to emphasize recruitment of paraprofessionals (line staff) to strengthen direct care social type services, rather than psychiatrists for medical and health care services. The requirement for more paraprofessionals is a result of increasing demand on residential facilities as deinstitutionalization continues.

To assist in manpower recruitment and placement, the MHSA is recommending the following areas be designated as Psychiatric Manpower Shortage Areas:

Severely Disturbed

	Males	Females	Total
12 and under	11	8	19
13 and over	87	38	125
Total	98	46	144

Grand Total 144

Moderately Disturbed

	Males	Females	Total
12 and under	102	44	146
13 and over	285	152	437
Total	387	196	583

Grand Total 583

NUMBER OF SERIOUSLY EMOTIONALLY DISTURBED YOUTHS IN MONTANA
IN NEED OF MORE INTENSIVE TREATMENT
August, 1980
(Unduplicated Numbers)

TABLE III

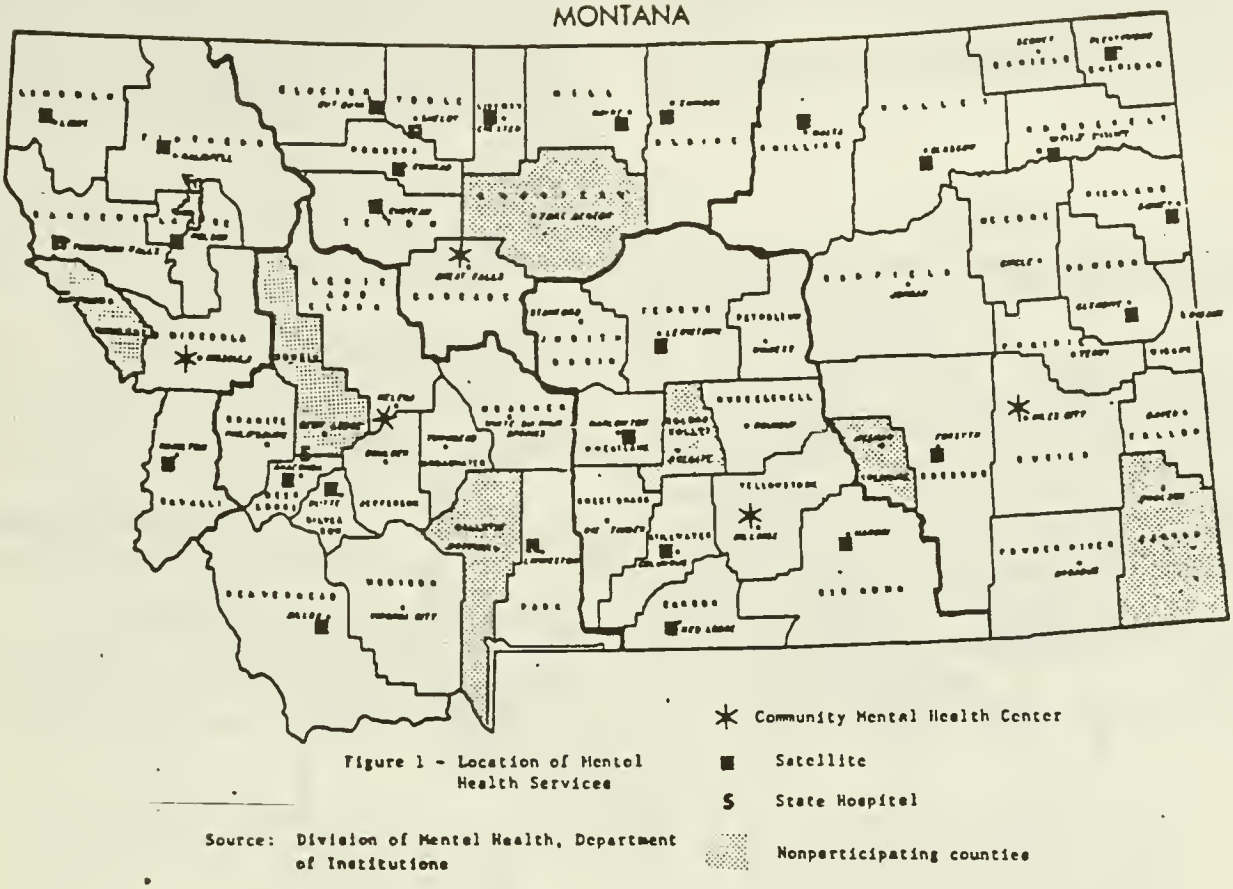


Figure 1 - Location of Mental Health Services

Source: Division of Mental Health, Department of Institutions

Region	Persons Served (1)	Caseload (2)	1979 Federal Funding (3)	Cost Per Client	Total Funding (4)
I (Eastern)	978	1,432	$ 177,759	$ 308	$ 929,074
II (North Central)	1,491	2,055	631,816	429	1,610,697
III (South Central)	1,584	2,315	395,472	401	1,704,912
IV (Southwestern)	1,001	1,197	346,034	358	1,288,622
V (Northwestern)	1,044	1,012	120,000	257	989,844
Total	6,098	8,011	1,671,081	438 (average)	6,523,149

TABLE IV

Community Mental Health Centers Utilization

Source: Montana State Plan for Mental Health Services, Division of Mental Health and Residential Services.

(1) Unduplicated Persons served Last Quarter of CY 1979

(2) Ending Caseload CY 1979

(3) Average Cost per client Third Quarter of CY 1979

(4) FY 1980

— The seventeen counties of the Eastern Region
— The Eastern Mental Health Center (at Miles City)
— The Counties of Fergus, Petroleum, Judith Basin and Wheatland in Region III
— Warm Springs State Hospital
— The Northwestern Mental Health Center (in Missoula)

These areas are shown in Figure 3. To be eligible for designation, an areas must have a psychiatrist to population ratio of 1 to 30,000. With the designation, the area is eligible for the placement of a National Health Service Corps (NHSC) Psychiatrist or other NHSC mental health worker. However, since only a total of 16 psychiatrists are expected to be placed nationwide in 1980, Montana should not see this as a long-range solution to the shortage of psychiatrists in the state.

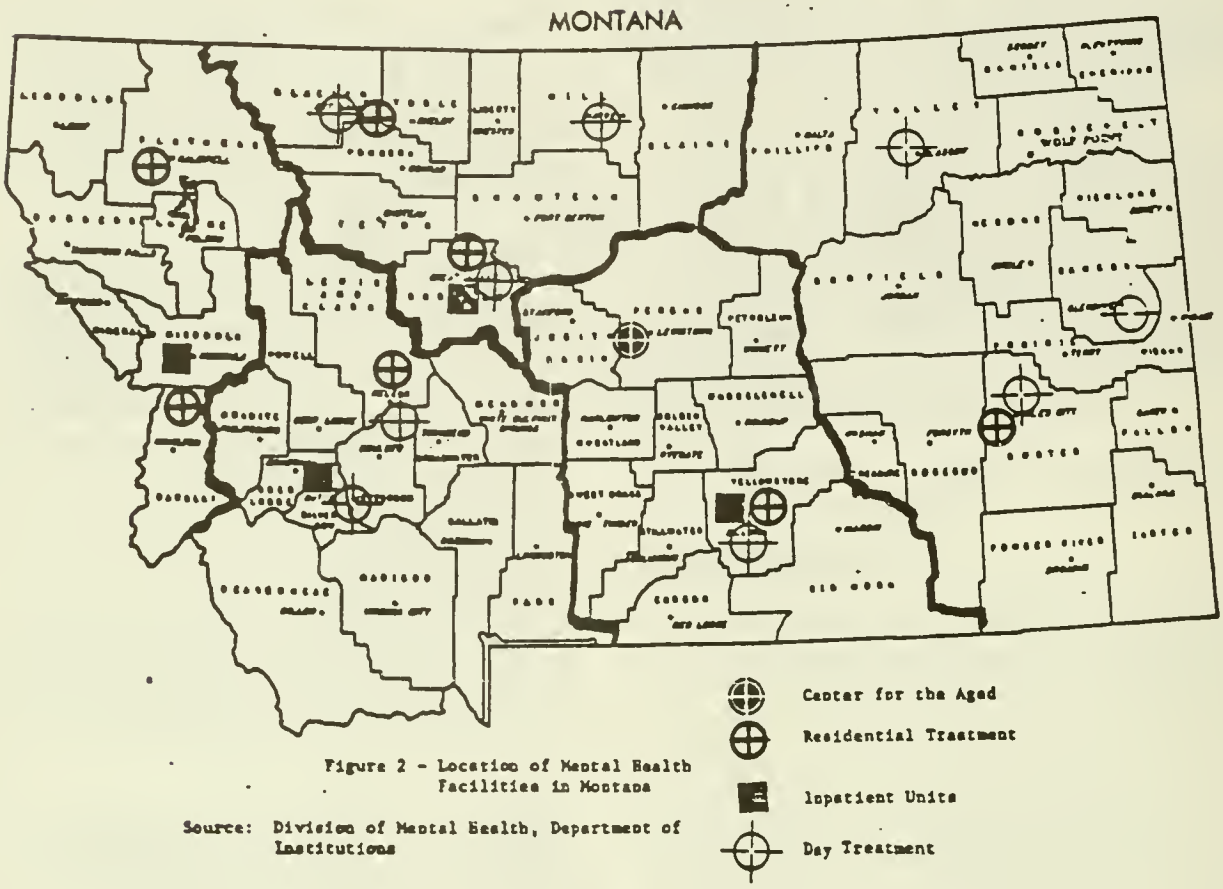


Figure 2 - Location of Mental Health Facilities in Montana

Source: Division of Mental Health, Department of Institutions

Institution and City	Year	Licensed Bed Capacity	Number Patient Days	Average Daily Census	Average Occupancy Rate (%)	Total Expenses	Estimated Cost/Day
Warm Springs	1976	1,099	235,989	647	59%	$ 6,733,431	$ 28.53
State Hospital	1977	N/A	N/A	N/A	N/A	N/A	N/A
(Warm Springs)	1978	516	160,171	439	85%	11,189,563	69.86
	1979	465	120,867	303	82%	10,467,739	86.73
Montana Center	1976	146	48,684	133	91%	712,627	14.64
for the Aged	1977	199	56,897	156	78%	1,008,907	17.73
(Lewistown)	1978	199	66,171	181	91%	1,370,103	20.71
	1979	199	70,943	194	97%	1,569,850	22.10

TABLE V

Selected Utilization Statistics for Warm Springs State Hospital and the Montana Center for the Aged (1976, 1977 and 1978)

Source: Unpublished data from Hospital Annual Reports.

3.3 COST

The Montana Health Systems Agency would support the development of community residential facilities for the treatment of the emotionally disturbed. The HSA should carefully consider any community facility wishing to utilize federal funds with documentation of financial feasibility and emphasis on strengthening one 8 bed group home in Missoula to treat moderately disturbed children over age 13 and establishing another to treat moderately disturbed children under age 12. Most group homes in Montana are not now able to treat moderately disturbed children under age 12. Most group homes in Montana are not now able to treat moderately disturbed children but could be equipped to do so with the addition of staff and support services.

Because these youths have been abused, neglected or traumatized at an age critical to healthy personality development, intervention to treat them must be massive and therefore expensive. But it is far cheaper to treat them now than to support 80% of them for much of their lives at Warm Springs or Deer Lodge, or on welfare rolls.

4.0 GENERAL ANALYSIS
4.1 ALTERNATIVES AND ISSUES

One of the problems identified in the plan as being inconsistent with the deinstitutionalization policy is that courts seem reluctant to use mental health centers for preadmission screening and directly commit persons to Warm Springs for a 60-day court evaluation. The plan suggests that in many cases a community professional should perform an initial interview in order to determine if inpatient evaluation and treatment is warranted. To address this problem the Community Support Project is planning two statewide workshops this year to bring together judges, county attorneys and mental health clinicians to look at referrals made by the courts to mental health agencies and the services provided.

APPENDIX 1

RECOMMENDED REVIEW CRITERIA, MENTAL HEALTH SERVICES

1. Mental health professionals, licensed and/or certified, should be accessible to every Montanan.
2. Each county seat should have mental health services available at least once a week on a regularly scheduled basis.
3. Recipients of mental health services should have the opportunity to indicate acceptability or the lack of it.
4. Quality of mental health services shall be determined by outcome studies, process audits, and staff competence measures.
5. All admissions to Warm Springs State Hospital and other inpatient psychiatric units shall be screened for appropriateness.
6. No resident of Montana shall be denied needed mental health services.

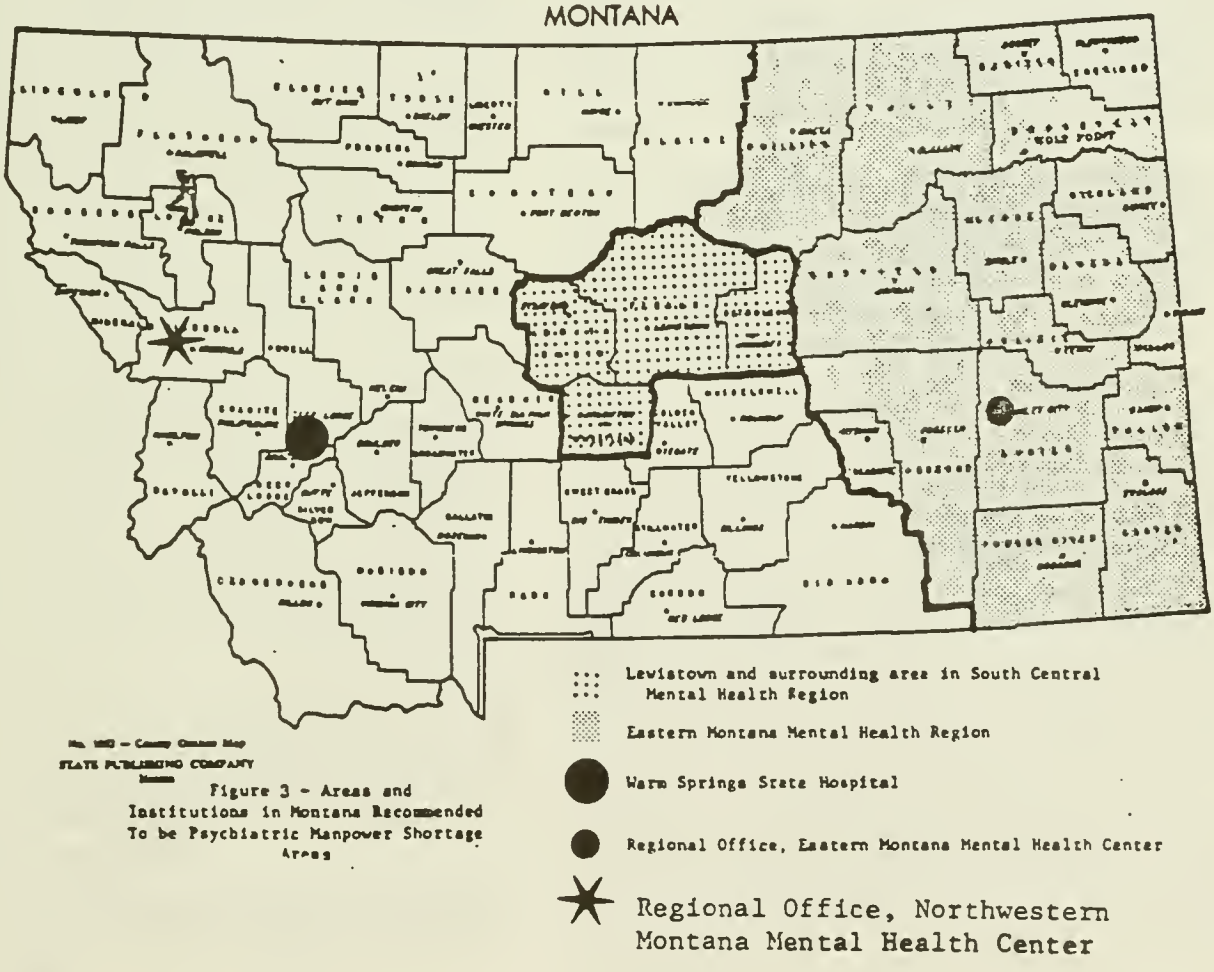

MONTANA
Lewistown and surrounding area in South Central Mental Health Region
Eastern Montana Mental Health Region
Warm Springs State Hospital
Regional Office, Eastern Montana Mental Health Center
Regional Office, Northwestern Montana Mental Health Center

Figure 3 - Areas and Institutions in Montana Recommended To be Psychiatric Manpower Shortage Areas

4.9

INTERMEDIATE CARE FACILITIES/MENTAL RETARDATION FACILITIES

GOAL:

Appropriate numbers of ICF/MR facilities and services should be accessible and available to the entire Developmentally Disabled population needing ICF/MR services in the State of Montana.

OBJECTIVES:

1. The North Central, and South Central service areas should have developed by 1982 ICF/MR (15 clients and under) services for their respective populations.
2. By 1981, the Montana State Health Planning and Development Agency, working with the Department of Social and Rehabilitation Services, and the Department of Institutions should develop specific standards for the ICF/MR (15 clients and under) for Certificate of Need applications.
3. The agencies involved should by 1983 evaluate and remove administrative barriers presently inhibiting the development of ICF/MR (15 clients and under) services in the state.
4. The Department of Social and Rehabilitation Services, through the central office in Helena should develop by 1981 fiscal, management, and program standards to simplify for providers the initiation of ICF/MR (15 clients and under) facilities.
5. The Department of Social and Rehabilitation Services and the Department of Institutions should coordinate by 1981 with the DD Council a plan to remove service gaps, utilization gaps and fiscal gaps relating to alternative community living presently identified in the State Plan for Developmental Disabilities.
6. By 1982 the Department of Social and Rehabilitative Services and the Department of Institutions should develop pre-service training programs for employees with heavy emphasis on behavioral management techniques.
7. By 1982 the Department of Social and Rehabilitative Services should have in place an appropriate salary matrix for line-staff employees of ICF/MR facilities.
8. By 1984, the Department of Institutions, the DD Council, and the Department of Social and Rehabilitative Services, should have defined the coordination necessary (sharing of services, case management, and staff development) for ICF/MR facilities in Montana.
9. The State Department of Health by 1983 should have conducted an interdisciplinary professional evaluation of five existing ICF/MR facilities to conclude whether or not they meet the intent of the regulations regarding "active treatment."
10. The Department of Social and Rehabilitation Services with the Department of Institutions should by 1982 develop a planning tool showing the continuum of services designating the most to least restrictive environment for the Developmentally Disabled population.

LONG RANGE ACTIONS

1. The State Department of Health and Environmental Sciences should consider separate criteria differentiating the sizes of ICF/MR facilites needing Certificate of Need.
2. The Department of Social and Rehabilitative Services should assume responsibility for a stronger state focus for community based developmental disabilities services, with regional offices assisting communities with comprehensive service plans supporting the need to re-orient the ICF/MR delivery system toward community services.
3. The Developmental Disabilites Council and advocacy groups should promote wide-spread public awareness and understanding of the problems of developmentally disabled persons.
4. The Department of Social and Rehabilitation Services should consider the feasibility of converting established Community Homes to meet ICF/MR standards.

1.0 BACKGROUND

1.1 SERVICE DEFINITION

As outlined in Federal Regulations (title XIX) an ICF/MR is a residential setting which provides room and board, a planned program of care and supervision on a continuous 24 hour-a-day basis and active treatment. Active treatment is further defined as "regular participation, in accordance with an individual plan of care, in professionally developed and supervised activities, experiences or therapies". It is anticipated that ICF/MR should provide a wider array of services than community residences and can serve a more disabled population. ICF/MR facilities are required by law to provide primary medical services as part of the treatment model.

Formerly, persons with developmental disabilities were placed in institutions for life or were unserved. The new philosophy supported by both state and federal regulations now accepts developmentally disabled individuals as entitled to the same social, economic, educational, legal and other benefits as other citizens.

1.2 SERVICES AND SETTINGS

Two basic elements of the ICF/MR regulations distinquish them from regulations governing other long-term facilities. First, all ICF/MRs must provide active treatment as needed by the client, based on an individual service plan which defines the objectives for each client. The individual service plans are developed by an interdisciplinary team, and are written in behaviorally stated objectives. Secondly, to implement the service plan, services must be provided as needed and can be provided through contract or other formal arrangement. Such allowances promote the integration of the client into the community and interaction with "generic" services. For these two reasons it is expected that the most common configuration of an ICF/MR will include at least two sites: the residential program site, and the day training habilitation program site. Federal regulation also defines Building and Life Safety code requirements, based on the numbers and needs of the clients to be served. The need for ICF/MR facilities came about through the deinstitutionalization revolution in the mid-1960's. The revolution which would take many years was pushed to accelerate the development of services in the community. The original ICF regulations published in the Federal Register, January 17, 1974, were complicated, covering services presently being offered in nursing homes as well as state institutions.[1] This presented a problem to the basic philosphy of treatment to handicapped people. Nursing homes were available, often with the

empty beds to absorb the numbers of people deinstitutionalized, but treatments in nursing homes do not typically develop programs to meet the intent of the law regarding "active" treatment. Active treatment is defined as.[2]

a) "regular participation, in accordance with an individual plan of care, in professionally developed and supervised activities, experiences, or therapies."
b) a written individualized plan of care "setting forth measurable goals or behaviorally stated objectives and prescribing an integrated program of individually designed activitites, experiences or therapies, necessary for the achievement of such goals or objectives." "The overall objective of the plan is to attain or maintain the optimal physical, intellectual, social, or vocational functioning of which the individual is presently or potentially capable."
c) "an interdisciplinary professional evaluation consisting of complete medical, social and psychological diagnosis and evaluations of the individual's need for institutional care" prior to admission to the institution for those individuals not already in residence.
d) re-evaluation of the same kinds at least annually "by the staff involved in carrying out the individual plan of care" and a progress review which includes assessment of whether the objectives have been met, their appropriateness, the individual's continuing need for institutional care, and consideration of alternate methods of care.
e) a release plan ("post institutionalization") developed by a Qualified Mental Retardation Professional" (defined in the regulations) and others which includes provisions for appropriate follow-up services including protective supervision.

Intense discussions have occurred over the issue of the most appropriate size of an ICF/MR. It is recognized that the least costly alternative is not the only nor necessarily the most significant factor to be considered in the determination of appropriate size of an ICF/MR. The size of a facility has significant impact on the quality, care and development of clients. The Montana Health Systems Agency having researched recommendations from other states, and providers within the state of Montana recommend a client population of eight to ten.

The Montana State Department of Institutions which administers two ICF/MR facilities in the state, (Boulder River School and Hospital, capacity 242 beds and Eastmont, capacity 55 beds) has no official position on the preferable size of future facilities. Representatives of the department project that because of the economic and programatic factors involved, 50 to 60 clients per ICF/MR is most feasible.

The Department of Social and Rehabilitation Services and the Developmentally Disabilities Council would prefer to see the development of smaller facilities.

1.3 TRENDS

The trend nationwide could best be addressed through the concepts of deinstitutionalization and normalization Deinstitutionalization has been mandated by legislative action and supported by federal grant monies, the rationale being that improved treatment would be available in the community in settings where client populations are smaller and treatment more individualized. As part of this treatment came the realization that behaviors are learned and that people should not be learning institutional behaviors but behaviors which are more normal and could only be learned in the community.

Montana has done an excellent job in the deinstitutionalization of the DD population considering there is no interagency master plan for this component. There recently has been a contract awarded by the DD Council to consultant firm which will help with the development of an overall plan for the development of community services and the deinstitutionalization effort.

2.0 CURRENT SITUATION

2.1 AVAILABILITY

There are presently sixty-two programs throughout the state delivering community home services with a client population of 378 developmentally disabled adults. An additional five childrens group homes serving 46 children are operational in the state.

There are presently five facilities in Montana which are certified ICF/MR. Table 1 shows the occupancy of these facilities, presently the best indicator of the availability of services to those clients in need of the services. Table 2, developed by the Developmental Disabilities Council, estimates the current DD population. This estimate of the DD population should not be construed as the numbers of people needing ICF/MR services.

The number of persons needing ICF/MR facilities (15 clients or less) has not been determined. Professionals in the field estimate this number to be at least 250 to 350 clients. The number of clients needing ICF/MR services is difficult to make because Montana has not developed a policy on the impact of deinstitutionalization, the most appropriate clients for ICF/MR services, and new definitions of what types of clients should fit the description of Developmentally Disabled.

2.2 ACCESSIBILITY

Figure I shows the geographic location of the ICF/MRs presently operating in the state. As with many other health services, Eastern Montana has the biggest accessiblity problem. North Central and South Central Montana do not have easy access to these services as well.

2.3 COST

An issue which must be considered in the development of new ICF/MR facility is financing. At present, it appears that there are numerous limitations inhibiting the development of appropriate sized ICF/MRs.

Confronted with these restrictions, the Department of Social and Rehabilitative Services must rely on vendors to incur the start-up and development costs for ICF/MRs. Limited financing from the private sector and steep start-up costs have sometimes proven to be disincentives to potential vendors.

Refer to Table I for the present cost per day of the established facilities.

A study conducted by the National Association of State Mental Retardation Directors of fours states, comparing costs between large and small facilites, resulted in the following findings:

COMPARISONS OF OPERATING COSTS
BETWEEN LARGE AND SMALL ICF/MR FACILITIES IN
FOUR SELECTED STATES

LARGE, STATE OPERATED INSTITUTIONS	SMALL COMMUNITY ICF/MR FACILITIES (6 to 10 Residents)
VERMONT	
$87.27[1]	$82.00[2]
MICHIGAN	
$76.03[3]	a.$62.00 b.$110.00[4]
NEW YORK	
-$120.00[5]	$125.00[6]
CONNECTICUT	
-$71-$72[7]	-$60-$61[8]

1) Includes - OT.PT, Transportation, Medical/Dental Habilitation, Day Care (for adults)

2) Includes - Same as for institution except, excludes day care for adults and Public Education for children

3) Includes - OT,PT, Transportation, Medical, Dental Habilitation, Day Care for Adults (On grounds of facility)

4) (a) includes-primarily in-home care, transportation (b) includes-Day care, Case management, transportation home development, OT,PT, Medical/Dental

It is anticipated that as more unity are developed, the daily rate will decrease and will be closer to the institutional rate and/or the $62.00 rate.

5) Includes OT,PT, Transportation, Medical/Dental, Habilitation, Day Care for Adults on grounds only

6) Includes - Same as institution except for dental and some Clinical/pharmaceutical service

7) Includes all the costs the state incurs in the operation of an institution except for direct training and education costs.

The institution population is 28% mild/moderate and 72% severe/profound. These residents receive 41% of the professional time. (These figures are for the ICF certified units)

8) Includes all the same services provided in the institution-the ICF/MR's are operated by the State. The community ICF/MR (15 or less beds) is 85% mild/moderate and 15% sever/profound. These receive 9% of the professional time.

	Licensed Beds	Cost/Day	Occ/Rate %	Total Patient Days	Average Daily Census
Boulder River School and Hospital	242	$67.58[4]	87%	87,600	218
Eastmont	55	$56.60	88%[5]	18,496[3]	60.35
Happy Acres (Ronan)	10	$46.39[2]	97.8%	3,569	9.78
Westmont	7[1]	-0-	-0-	-0-	-0-
Parkside Manor	52	$45.97	98%	13,872	37.9

TABLE I
UTILIZATION AND COST STATISTICS FOR CERTIFIED
ICF/MR BEDS IN MONTANA FOR FISCAL YEAR 79-80

1) Westmont received its Certificate of Need June 6, 1980 and has not accepted clients as of this date.

2) $23.00 of the cost per day at Happy Acres is an expense for contracted day care services.

3) Eastmont has a 40 bed unit with 14,600 average patient days and a 15 bed unit which is a 5 day a week program totalling 3,795 patient days for the fiscal year 79-80.

4) 1980-81 Medicaid reimbursement only.

5) For the 40 bed unit only Medicaid occupancy.

	Total Population[1]	DD Population[2]	Pre-School DD Pop.	School Age DD Pop.	Adult DD Pop.	65 +
Eastern (Region I)	103,089	1,618	138	366	940	175
North Central (Region II)	149,940	2,354	219	514	1,390	230
South Central (Region III)	160,939	2,527	205	562	1,503	256
Southwest (Region IV)	189,840	2,980	230	614	1,817	320
Northwest (Region V)	186,222	2,924	224	639	1,766	295
Total	790,030	12,403	1,016	2,695	7,416	1,276

TABLE II
ESTIMATE OF 1981 DD POPULATION IN MONTANA

1) State totals derived from "Montana Population Projections,1980-2000," July, 1977, Research and information Systems, Department of Community Affairs.

2) Based on 1.57% percentage of population. This is an estimate of population with deficits in three or more of the seven major life areas, a figure significantly lower than the traditional 3% MR alone or the sometimes quoted 5.44% for all DD persons, as defined by Montana State Law. This figure represents new definitions found in 95-602 amended by 94-103.

	MALE		FEMALE	
AGE	Boulder	Eastmont	Boulder	Eastmont
0-5	0	0	0	0
6-12	8	5	2	2
13-17	9	6	6	2
18-21	18	3	15	3
22-25	27	5	14	4
26-30	29	3	15	5
31-40	29	3	29	5
41-50	14	3	3	3
51-60	9	1	6	2
61-64	1	0	1	0
65-70	2	0	1	0
71-80	2	0	0	0
TOTAL	148	29	92	26

TABLE III

AGE, SEX AND LEVEL OF RETARDATION OF CLIENTS
AT BOULDER RIVER SCHOOL AND HOSPITAL AND EASTMONT
HUMAN SERVICES CENTER

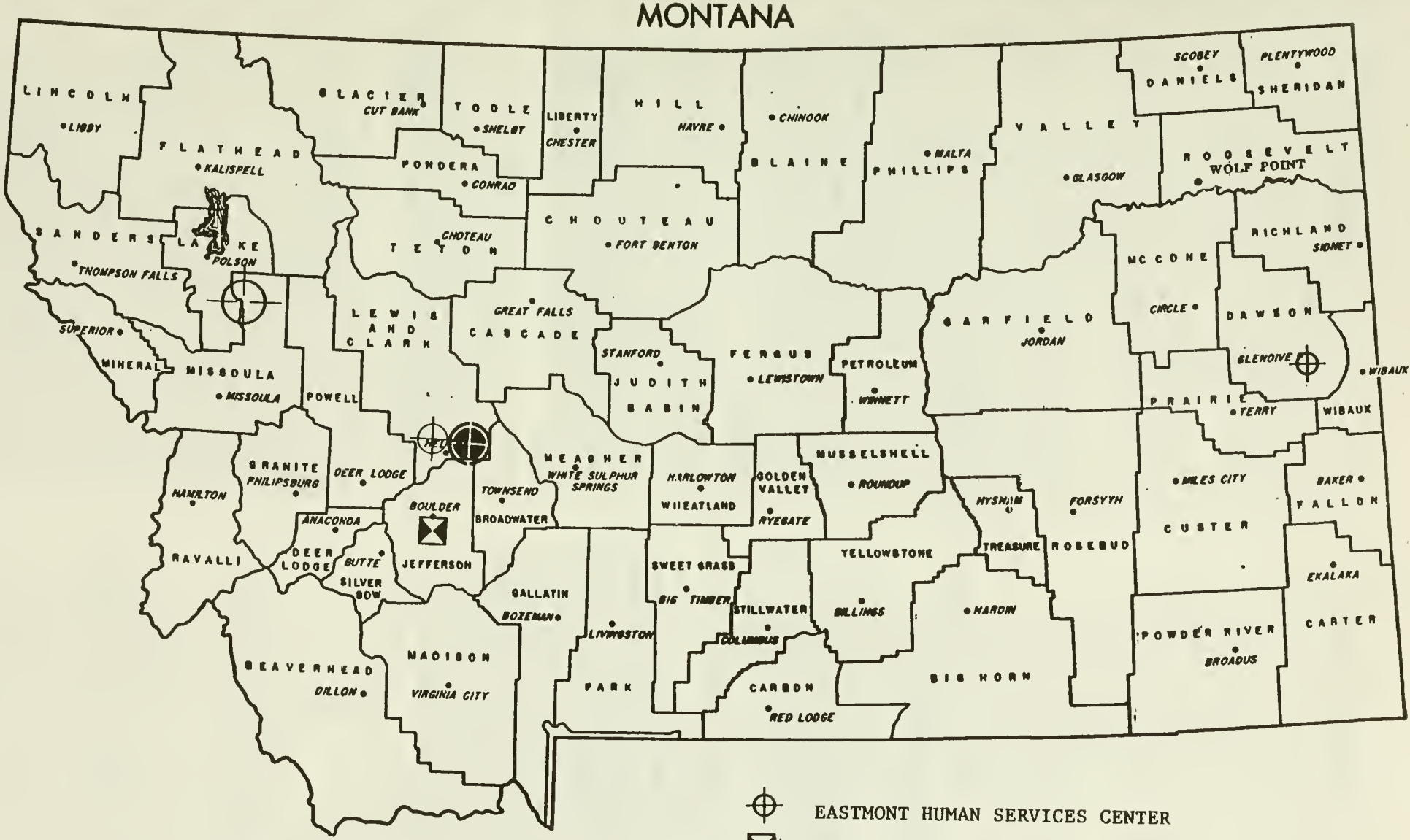


FIGURE I - Geographic Locations of Certified ICF/MR Facilities

EASTMONT HUMAN SERVICES CENTER

BOULDER RIVER SCHOOL & HOSPITAL

WEST-MONT COMMUNITY CARE , INC.

PARKSIDE NURSING HOME

HAPPY ACRES REST HOME

	MALE		FEMALE		TOTAL	
	Boulder	Eastmont	Boulder	Eastmont	Boulder	Eastmont
Profound	103	20	79	22	182	42
Severe	14	6	5	2	19	8
Moderate	22	3	7	2	29	5
Mild	2	0	1	0	3	0
Normal	2	0	0	0	2	0
TOTAL	143	29	92	26	235	55

TABLE IV

LEVEL OF RETARDATION (ADAPTIVE BEHAVIOR)

3.0 FUTURE RESOURCE REQUIREMENTS

3.1 AVAILABILITY

Determing the future availability of ICF/MR facilities is most affected by the following barriers:

1) The number of beds required over the long-term cannot be determined from information presently available from DD population estimates, the population of the state institutions, or clients presently residing in the community.

2) A specific criterion for client eligibility for ICF/MR facilities has not been developed.

Little information is now available from the State Department of Institutions, and the State Department of Social and Rehabilitation Services regarding the numbers of persons which could benefit from ICF/MR services. The Montana Health Systems Agency, utilizing a task force to develop this plan component, presents the following estimate of bed need for the State of Montana. This estimate is conservative and represents the number of new community based beds which should be developed in Montana. Since this estimate is not based on quantifiable information it should be considered only as a guideline. These estimates will be revised as quantifiable information is gathered to support actual needs. The estimate of beds is based on 17 beds per 100,000 popululation on a regional basis.

Region I	(Eastern)	19
Region II	(North Central)	25
Region III	(South Central)	32
Region IV	(Southwestern)	35
Region V	(Northwestern)	35
Total Beds Needed		146

TABLE V - ICF/MR Beds Needed by Subarea in Montana by 1985

3.2 ACCESSIBILITY

The fact that Eastmont is located in the Eastern Region of the State is a plus in addressing the problem of accessibility. The fact that the major population centers of Billings and Great Falls do not have the ICF/MR services available makes those communities high priority for addressing the issue of accessibility in the State.

The communities of Butte, Bozeman and Missoula also have no local ICF/MR facilities, but the accessibility to established programs is not as big a concern since programs have been established in their service areas. The developmentally disabled are entitled to these services in the most accessible manner feasible. The major problems related to accessibility of services are that, generally, as in many other health services, the qualified personnel needed will be most easily attained in the major population centers, and, of course, as in the availability of services, accessibility is effected by barriers of financial support for the services.

3.3 COST

The State must be willing to remove some of the restrictive policies and commit itself to exploring potential mechanisms for expanded financing.

A similar effort must be undertaken on the Federal level, through expanded programs within the Department of Housing and Urban Development. The definitional restrictions must be removed so that funds for housing will be available for community residences for the mentally ill and mentaliy retarded.

Expansion of both State and Federal participation in residential development must be coupled with a stronger commitment from the private sector. Traditional financing mechanisms must be made available to vendors of DD services. Regardless of funding source, it will be critical that all developmental activities be conducted in a coordinated, meaningful manner.

In considering the cost efficiency of ICF/MRs it has been generally accepted that compromises need to be made regarding the ideal treatment found in smaller facilities with smaller client to staff ratios, in order to maintain a cost effective operation. Although deinstitutionalization has been in full swing the last fifteen years there still is inadequate research to do a true comparison of cost differences between large and small facilities. A recent study done by the National Association of State Mental Retardation Program Directors Incorporated has determined that although initial costs are very high in the development of small facilities, the rate at which the costs decline over a period of time to come more in line with the larger facilities is greater than expected. The Health Systems Agency, in supporting the need for the development of the small facilities, also recognizes that cost effectiveness is desireable without regionalized support in staff development, case management, sharing of services and adequate purchase of services. The facility which has poor accessibility to support services and which attempts to be self contained, will not be the most cost effective operation.

4.0 GENERAL ANALYSIS

4.1 ALTERNATIVES AND ISSUES

Acceptability of the mentally retarded in the community is still an issue. There are still those people who see the retarded as a danger to themselves and to society when placed in community facilities. As a result the retarded have suffered in facilities which are restrictive and lacking in appropriate habilitative treatment.

A second issue is concern by professionals that the regulations are too medically oriented, and that physicians would be the decision makers rather than psychologists, social workers, and educators which would allow for more comprehensive habilitative programming.

Although there are many issues regarding the development of community facilities, the final one to be discussed here is that of standards regarding the small (15 or less) facility. The Life Safety Codes and the American Standard Specifications for making buildings and facilities accessible to and usable by the physically handicapped are presenting barriers prohibiting the development of programs. These barriers are especially difficult for the non-profit organizations to overcome. More realistic specifications for a small community operation is needed.

REFERENCES

1) *Intermediate Care Facilities For The Mentally Retarded,* Thomas Stripling and Susan J. Aures, A training module to provide an understanding of ICF/MR services and an overview of Medicaid.

2) McCarty, Keith. *A Report on the Study of the Feasibility of Developing an ICF/MR (15 or less) Program in Montana.* January 14, 1977.

3) *State Plan for Developmental Disabilities* (Draft) 1981-1983. Prepared by the Developmental Disabilities Planning and Advisory Council of Montana.

4) *Comparisons of Operating Costs Between Large and Small ICF/MR Facilities In Four Selected States,* National Association of State Mental Retardation Program Directors, Inc. August 14,1980.

APPENDIX I

RECOMMENDED REVIEW CRITERIA: INTERMEDIATE CARE FACILITIES/MENTALLY RETARDED

1) Proposals to provide ICF/MR services should be consistent with the Montana Health Systems Plan, State Health Plan, and State DD Plan.

2) Proposals to certify expanded ICF/MR beds in existing facilities will not be approved unless the overall average occupancy over the three months immediately preceding the submittal of the proposal is at least 90 percent.

3) A proposal to provide ICF/MR beds must comply with one of the following models:
   a) community-based, 15 beds or less, ICF/MR facility serving mentally retarded persons who are non-mobile, nonambulatory, mobile nonambulatory, ambulatory;
   b) state-operated mental retardation centers converting existing beds to ICF/MR beds. Such conversions must be in compliance with the State Health Plan/State Medical Facilities Plan;
   c) any facility proposing to develop more than 15 beds should be able to justify programatically the need for the larger facility.

4) A proposal to provide new or expanded ICF/MR services must document the extent to which the following will be available. If any item will not be available, then substantive information must be given obviating the need for that item before approval for a new or expanded service can be given:
   a) Psychological Services
   b) Social Services
   c) Medical Services
   d) Occupational Therapy Services
   e) Recreational Therapy Services
   f) Speech Pathology and Audiological Services
   g) Dental Services
   h) Dietary Services
   i) Nursing Services
   j) Transportation Services
   k) Access To Religious Services
   l) Volunteer/Advocacy Services
   m) Physical Therapy Services
   n) Training & Habilitation Services

5) Suitable day programming shall be provided as appropriate at a site separate from the facility residence when such services for the facility's population are available within a reasonable travel time.

6) Programs and services provided by the facility, or to the facility by agencies outside it, or by persons not employed by it, must meet the standards for quality of services as stated in 45 CFR 249.13 (c) (1) - (6). All contracts with outside agencies or individuals must stipulate that these standards will be met.

7) Recreational facilities on-site or in close proximity must be available and accessible to all residents regardless of their disabilities.

8) Training in activities of daily living must be provided in the residential facility. Such training areas must include self-help skills, eating skills, and leisure skills.

9) There shall be a formal arrangement for qualified medical care for the facility's residents including care for medical emergencies on a 24 hour, seven days-a-week basis.

10) A proposal to provide new or expanded ICF/MR services must not group residents of grossly different ages, developmental levels, or social needs.

11) A proposal to provide new or expanded ICF/MR services must specify the site on which the services are to be operated.

12) A proposal to provide expanded ICF/MR services must provide satisfactory assurances that the services will be provided in a physical environment that conforms to the requirements of federal, state, and local regulatory bodies.

13) A proposal to provide new or expanded ICF/MR services must provide staffing to appropriately meet the identified needs of the residents. The ICF/MR habilitation and training must be administered by a qualified mental retardation professional and provide satisfactory assurance of in-service training and continuing education programs for all staff and comply with all federal, state and local laws and regulations applicable to the facility's personnel.

14) A proposal to provide new or expanded ICF/MR services must identify all capital and operating costs associated with the proposed services in a manner consistent with current Medicaid guidelines. The proponent must demonstrate that the alternative selected is the most cost effective of the available feasible alternatives to accomplish the objectives and goals that the proposed project is intended to satisfy.

V PRIMARY HEALTH CARE SERVICES

CHAPTER 5
PRIMARY CARE SERVICES

Primary care is the type of health care with which most people are familiar. It is usually a person's entry point into the medical delivery system. It focuses on ambulatory care and those services requiring frequent utilization, such as routine preventive care, diagnosis and treatment of minor physical and mental illnesses.

In this plan, four different components of primary care are discussed. These are:

— Primary Health Care Personnel
— Dental Health Care Personnel
— Federal Primary Care Programs (FPCP)
— Hospice

The first three are basically manpower studies with emphasis on educational programs and establishing MHSA policy on the potential use of National Health Corps Personnel in Montana.

No recommended review criteria are offered for the manpower components. Recommended review criteria are offered for the latter two plan components.

Table 1 shows the general categories of service incorporated in these primary care elements and the settings in which they are found. None of these components are addressed in the National Guidelines.

SERVICE	Primary Health Care Personnel	Dental Personnel	Federal Primary Care Programs	Hospice
Categories of Service				
Community Health Promotion	X	X	X	
Prevention & Detection	X	X	X	
Diagnosis & Treatment	X	X	X	X
Habilitation & Rehabilitation	X	X		
Maintenance Services	X	X		X
Support Services			X	X
Enabling Services			X	
Settings				
Community			X	X
Home				X
Mobile			X	
Ambulatory	X	X	X	X
Short-Stay			X	X
Long-Stay				
Free Standing Support			X	X

Table 1

Subjects, Categories of Service, and Settings addressed in the Primary Care Service components.

5.1
PRIMARY HEALTH CARE PERSONNEL

GOAL

Residents of Montana should have reasonable access to quality primary health care.

OBJECTIVES:

1. By 1985, the following population to physician ratios should be attained:
   - — General/Family Practitioner for every 2,500 persons
   - — Internist for every 10,000 persons
   - — Pediatrician for every 10,000 persons
   - — Obstetrician and Gynecologist for every 10,000 persons
2. By 1985, every county of over 2,000 persons should have at least one general/family physician.
3. By 1985, each community of over 5,000 population and serving a catchment area of at least 10,000 people should have at least one general internist, pediatrician and obstetrician/gynecologist.
4. The use of cooperative and supervised practices, limited to a one-to-one basis, among physicians, nurse practitioners, and other primary health care personnel in primary care settings should be encouraged.

LONG RANGE ACTIONS

It appears that a combination of four manpower strategies should be followed to attract primary care manpower, especially family practitioners, to the underserved rural areas of the state. They are:

1. Continue to support both the WICHE and WAMI programs for educating Montana students. These programs should be evaluated biannually to see if they are assisting in resolving Montana's medical manpower problems. **(Cost - $1.8 million/year.)**
2. Support new and existing Montana programs for educating nurses in the specialty of primary care.
3. Support a liberal policy toward the designation of critical manpower shortage areas and the recruitment of National Health Services Corps personnel with the following conditions:
   a) Any new areas wishing critical manpower shortage area designations must show broad based community support (i.e., requests from county commissioners, requests from local medical associations or community petition).
   b) Emphasis should be placed on family practitioners who have completed residency training programs.
   c) Placement should be restricted to actual shortage areas. (Cost - $280,000 per year assuming eight NHSC physicians can be placed.)
4. Support the recruitment of primary care physicians, nurse pracitioners, and nurses by Rural Health Initiative Programs.

1.0 BACKGROUND

1.1 SERVICE DEFINITION

The purpose of this component is to estimate the state's future needs for primary health care personnel, examine the current problems and develop strategies for alleviating these problems. Overall, the primary health care manpower problems can be divided into two groups — geographical maldistribution and specialty maldistribution. Geographical maldistribution means that providers are not located in the areas where they are most needed. Specialty maldistribution means there are not sufficient numbers of personnel in general practice, family practice and the primary care specialties. Of course, these two problems are interrelated.

Primary health care is defined as: a) the care the consumer receives at the point of contact with the health care systems; and b) the continued care of the individual as an ambulatory consumer. The care includes a) the identification, management and/or referral of health problems, and b) the maintenance of the consumer's health by means of preventive and promotive health care actions.

In addressing primary health care personnel, three different types of health professionals are included:

- — Physicians (Doctors of Medicine)
- — Osteopaths (Doctors of Osteopathy)
- — Nurse Practitioners

As defined by the Medical Practice Act, the practice of medicine means the "diagnosis, treatment, or correction of, or the attempt to, or the holding of oneself out as being able to diagnose, treat, or correct human conditions, ailments, diseases, injuries, or infirmities, whether physical or mental, by any means, method, devices, or instrumentalities."[1]

Physicians are licensed through a board of medical examiners consisting of seven members. Before granting a physician's certificate to practice medicine the board requires that the applicant be a citizen of the United States; be of good moral character; be a graduate of an approved medical school; has completed, or has had experience or training equivalent to, a one year internship; and passes an examination administered by the board.

Osteopaths (D.O.'s) are graduates of Osteopathic schools and in most states are licensed separately from Medical Doctors. For several years, Montana restricted a D.O.'s practice to prescribing drugs and performing surgery. However, in 1973 the law was amended to grant full practice rights (i.e., the same as those granted to M.D.'s) for D.O.'s who graduated since 1955 and passed the FLEX examination (an examination given to graduates of foreign medical schools before they can be licensed).

In this component, emphasis is being placed upon primary care physicians. Primary care physicians are a subgroup of all physicians. Although many definitions are used to identify these physicians, this document will use one employed by the Department of Health and Human Services. **A primary care physician is one who practices in one of the four major primary care specialties — general or family practice, general internal medicine, general pediatrics and obstetrics and gynecology.**[2]

The definiton of Nurse Practitioner, according to the American Nurses Association Council of Primary Health Care Nurse Practitioners, states:

> "The nurse pracitioner is an R.N. who is a primary health care provider directly responsible and accountable to the consumer, and who is prepared through a formal organized educational program to coordinate and deliver comprehensive, continuous, personalized care."

The nurse practitioner already possesses a license to practice nursing and is legally liable for his/her own practice. The Law does not place the registered nurse under the direct

supervision of any other health discipline. Nursing's relationship with medicine must of necessity be one of collaboration, consultation, and referral if comprehensive care is to be provided.

We quote the definition of the practice of professional nursing from Montana Law 66-1222 (3)(a), MCA 1946:

> "The practice of professional nursing means the performance for compensation of any act in the observation, care and counsel of the ill, injured or infirm, or in the maintenance of health or prevention of illness of others, or in the supervision and teaching of other personnel, or as prescribed by a person licensed in this state to prescribe such medications and treatments, requiring substantial specialized judgement and skill and based on knowledge and application of the principles of biological, physical and social science."

Another personnel category, the physician assistants, is not addressed in this document. Physician assistants are not legally recognized in this state according to the Attorney General's opinion of August 28, 1975.[3] Furthermore, there does not appear to be any wide support to legalize physicians assistants in this state.

1.2 SERVICES AND SETTINGS

Montana provides a variety of settings for the primary care physician. This ranges from sophisticated group practices in areas such as Billings, Great Falls, and Missoula, to remote settings in Eastern and Central Montana featuring either solo or two physician practices.

Nurse paractitioners in Montana, while not licensed under separate licensure regulations, provide needed primary care in many remote areas of Montana.

1.3 TRENDS

The national trend primarily evolves around provision of primary care personnel for all the populace and a trend to analyze current situations regarding maldistribution of physicians vs. physician shortage.

The Northwestern Region of the United States (including Montana) continues to strive to attract primary care physicians particularly in the remote areas. There is an increasing interest and demand for nurse practitioners in the region.

Table 1 illustrates the current trend in population to physician ratios for Montana. Additionally, the nurse practitoners appear to be increasing within the state despite a lack of statewide licensure regulations.

Area	GP/FP	Int.Med.	Ped.	Ob/Gyn.
Northwestern	2,244	5,477	8,464	8,097
North Central	2,999	8,330	14,994	6,519
Southwestern	2,182	4,415	15,820	12,656
South Central	2,980	4,734	14,631	11,496
Eastern	2,193	11,454	103,089	51,545
STATE RATIO	2,461	5,725	14,364	11,791

TABLE 1
Current Ratio of Population per
Primary Care Physician in Each Subarea, 1980

2.0 CURRENT SITUATION

2.1 AVAILABILITY

The increase in the number of physicians practicing in Montana between 1960 and 1974 is shown in Table 2. Overall, the number of physicians has increased during the period. The distribution of physicians within these groups and the population to physician ratios indicate the same conclusions — a trend toward increased specialization.

During the past five years, Montana has licensed 53 new physicians a year. An examination of these newly licensed physicians shows the following statistics:

- — Between 60 and 70 percent of the physicians licensed during this period are practicing in Montana.
- — The number of newly licensed physicians has increased almost every year. The number licensed in 1977 is approximately double that observed in 1973.
- — Between 20 and 30 percent of the newly licensed physicians practicing in Montana are general or family practitioners. Between 20 and 23 percent are primary care specialists (internists, pediatricians, and ob/gyns).
- — About three percent of the physicians licensed during this period practiced in Eastern Montana.

Table 3 shows the number of active physicians in 1979, the overall population to physician ratio,the number of general and family practitioners, the number of other primary care specialists, and the population to primary care physician ratios by subarea. The latter ratio is a basic criterion to determine whether or not the area can qualify as a critical medical manpower shortage area and is, therefore, eligible for National Health Service Corps (NHSC) physicians.

Table 3 illustrates the maldistribution of physicians in Montana. The rural counties have a substantially higher population to physician ratio. The physicians in these counties are also more likely to be family practitioners. Many counties, especially in Eastern and South Central Montana, have only one or two physicians. In recent years, four hospitals in these small communities have been threatened with closure because of the loss of their only physician. Roundup (South Central) had to close its hospital (but is now open); Baker (Eastern) lost its only physician but attracted two others after a great deal of publicity; Philipsburg (Southwestern) and Jordan (Eastern) are currently threatened with closure for the same reason. One of the goals of this plan is to develop a strategy to bring more medical coverage stability to these rural areas.

	Specialty Grouping	Year 1960	1965	1969	1974	1979	1980
Number Physicians	All Direct Patient Care	593	625	660	692	763	1085
	General/Family Practice	236[1]	276	249	218	321	321
	Primary Care[2] Specialists	199	184	206	209	261	361
	Non Primary Care	152	165	204	257	181	398
	Unknown	6	—	1	8	—	5
%	All Direct Patient Care	100%	100%	100%	100%	100%	100%
	General/Family Practice	39.8%[1]	44.2%	37.7%	31.5%	42%	29.6
	Primary Care[2] Specialists	33.6%	29.4%	31.2%	30.2%	34.2%	33.3
	Non Primary Care	25.6%	26.4%	30.9%	37.1%	23.7%	36.7
	Unknown	1.0%	—	0.2%	1.2%	—	.5
Population to Physician Ratio	All Direct Patient Care	1138	1123	1051	1062	1028	728
	General/Family Practice	2860[1]	2557	2787	3372	2444	2461
	Primary Care[2] Specialists	3391	3837	2787	3517	3006	2188
	Non Primary Care	4441	4279	3401	3860	4334	1985

1) The increase in the number and proportion of General and Family Practitioners between 1960 and 1965 was due almost entirely to a change in specialty designation by some physicians from General Surgery to General Practice.

2) In the original study, primary care specialists included General Internists, Pediatricians, OB/GYN and General Surgeons.

Table 2

Number of Physicians in Direct Patient Care in Montana, Distribution of Specialty Groupings, and Population to Physician Ratios for Selected Years

SOURCE: Lawrence, D. & D. Cherkin, "The Physician Manpower Experience in Washington, Alaska, Montana and Idaho, 1960-1974," Department of Health Services School of Public Health & Community Health, University of Washington, Seattle, Washington, July, 1973.

Subarea	County	Number Active Non-Federal Physicians	1980 Pop. Per Physician	Number Active General Practice (Family Practice) Physicians	Internal Medicine	Pediatrics	OB/GYN	1980 Pop. Per Primary Care Physician
North-Western	Lincoln	14	1134	8	1	1	-	1587
	Flathead	87	564	28	6	5	8	1045
	Sanders	5	1731	4				2163
	Lake	22	828	12	1	2	2	1071
	Mineral	2	762	2	-	-	-	952
	Ravalli	14	1381	5	2	1	-	2416
	Missoula	178	400	22	24	13	13	990
SUBTOTAL		322	573	81	34	22	23	1150
North Central	Glacier	11	1047	7	1	-	-	1439
	Toole	3	1681	3				1681
	Pondera	6	1184	4				1777
	Teton	5	1396	4				1745
	Cascade	145	587	18	13	9	11	1669
	Chouteau	3	2089	3				2089
	Hill	28	658	7	4	1	2	1316
	Blaine	3	2313	2				3470
	Liberty	3	854	2				1281
SUBTOTAL		207	724	50	18	10	13	1648
South-Western	Beaverhead	8	1088	5				1741
	Madison	5	1120	3				1867
	Gallatin	73	555	26	12	4	6	880
	Lewis & Clark	90	455	21	16	7	4	853
	Broadwater	2	1506	2				1506
	Jefferson	5	1454	3	1			1817
	Meagher	1	2198	1				2198
	Silver Bow	58	743	8	9	1	4	1960
	Deer Lodge	16	927	7	1			1855
	Powell	10	803	4	3			1147
	Granite	1	2656					2656
	Park	12	1083	7	1		-	1624
SUBTOTAL		281	676	87	43	12	14	1209
South Central	Fergus	18	728	9	2			1192
	Petroleum	-	-	-	-	-	-	-
	Judith Basin	-	-	-	-	-	-	-
	Wheatland	3	659	2			-	989
	Golden Valley	-	-	-	-	-	-	-
	Musselshell	2	2184	2				2184
	Sweet Grass	2	1454	1			1	1454
	Stillwater	3	1372	3				1829
	Carbon	4	2028	4				2028
	Big Horn	5	2343	4				2929
	Yellowstone	209	522	29	32	11	13	1283
SUBTOTAL		246	652	54	34	11	14	1424
Eastern	Valley	13	1110	5	2			2062
	Daniels	2	1512	2				1512
	Sheridan	2	2510	2				2510
	Roosevelt	10	1076	8				1345
	McCone	1	2530	1				2530
	Garfield	1	845	1				845
	Richland	14	5593	6	1			1598
	Dawson	6	1980	4	1			2376
	Wibaux	-	-	-	-	-	-	-
	Rosebud	2	1553	2				1812
	Treasure	-	-	-	-	-	-	-
	Powder River	1	2203	0	1			2203
	Custer	22	615	3	4		2	1503
	Prairie	1	1895	1				1895
	Phillips	2	2751	2				2751
	Fallon	2	2024	2				2024
	Carter	2	618					618
SUBTOTAL		81	1171	39	9	0	2	1777
State Total		1137	688	311	138	55	66	1360

Source: Health Data Book. Montana Department of Health & Environmental Sciences, Oct., 1980.

TABLE 3
Active Physicians and Primary Care
Specialists in Montana by Subarea, 1980

Specialty	Montana	Eastern	North Central	North-western	South Central	South-western
Ophthalmology	48	2	9	11	12	14
Pathology	34	4	5	10	6	9
Psychiatry	36	2	8	10	7	9
Radiology	51	4	12	14	9	12
Surgery, General	92	10	8	26	18	30

TABLE 4 - Physician Specialists in Montana

Source: Health Data Book, Montana Department of Health & Environmental Sciences, 1979.

In Montana, most of the Osteopaths (D.O.'s) can be considered general practitioners. Nineteen D.O.'s maintain an active license, but only seven have graduated since 1955, taken the FLEX examination and have full practice rights in Montana. Five of these are federal employees — three at the USAF hospital at Malmstrom Air Force Base, Great Falls; one with the Indian Health Service and one with the National Health Service Corps. The NHSC D.O. and the two D.O.'s with full practice rights are included in the figures in Table 3. It appears, however, that many small hospitals in Montana have overlooked the possibility of recruiting Osteopaths when searching for a physician for their communities.

It should be noted that the median age of Montana physicians is not significantly different from national figures and has dropped somewhat since 1960. The average age of physicians in Montana is 45.9 years; the national average age in 1973 was 45 years. In 1960 the average age in Montana was 47.0 years. A ten percent sample of the general and family practitioners indicates that they are somewhat older — 49.6 years. Consequently, it appears that age, in general, is not a big concern in planning for Montana's future physician needs. It does become important, however, when the individual community's only physician is in his/her sixties.

The primary care specialists (Internists, Pediatricians, and Ob/Gyns) are for the most part, located in the larger cities. One reason for this is that they need a larger population base to maintain their specialty practices. Since this data was compiled, Miles City (Custer County in Eastern Montana) has lost its Pediatrician and Ob/Gyn physicians and has not been able to recruit replacements. This leaves almost all the Eastern Subarea without primary specialty care.

The distribution of non-primary care physicians by subarea is presented in Table 4. Again, these physicians are primarily located in the population centers due to the nature of their practices. General Surgeons are the most commonly found specialists in the smaller communities. In many of the rural areas, the surgeons staff more than one hospital in the region to give more accessibility to the population. Similarly, the pathologists and radiologists in the rural areas have contracts to serve several hospitals.

2.2 ACCESSIBILITY

The current accessibility to primary care in Montana is governed by the ability to attract physicians and to maintain their residence in the state. The following factors greatly influence this capability.

1. Montana, having no medical school located within its borders, is at a disadvantage when trying to develop manpower policies to redistribute physician resources. In an effort to supply the state with physicians and give Montana students an equal educational opportunity to get into medical school, the state has participated in two educational programs — the WICHE (Western Interstate Commission for Higher Education) Student Exchange Program and the WAMI (Washington, Alaska, Montana, and Idaho) Program.

The WICHE Student Exchange Program is designed to increase and improve the opportunities of Western state students to continue their education in professional fields. While a student's WICHE certification will not guarantee his acceptance into a receiving medical school, he/she is given preference over other out-of-state applicants. Under this arrangement, the state's obligation is to pay a prearranged amount for each student which is approximately equal to the school's out-of-state tuition.

Montana has been participating in the WICHE Program since 1953. During this time, 192 Montana students went to medical school under this program. Of those students graduating before 1970 who could be tracked, (43 of the 55 graduated could be followed) nine (21 percent) were practicing in Montana.[4]

At the present time, there are 36 medical students from Montana in the WICHE Student Exchange Program — ten being in the 1977-78 freshman class. The 1978-79 budget for these students is $444,000. Thus, the cost of the program is $12,333 per student per year.

The WAMI Program is a regional medical education program serving the state of Washington, Alaska, Montana, and Idaho and headquartered at the University of Washington. In this program, students receive their first year's training at a school in their state. In Montana's case, the school is Montana State University at Bozeman. The next two years are spent at the University of Washington's Medical School. Six week clerkships (apprenticeship) in the four-state area are offered to third and fourth year students. In Montana, four clinical sites have been established — Billings (Internal Medicine), Missoula (Internal Medicine), Great Falls (Pediatrics), and Kalispell/Whitefish (Family Practice). The intent of these clerkships is to give students experience in actual clinical settings.

Montana has been participating in the WAMI Program since 1975. Under current provisions, 10 students a year are accepted into the program from Montana. Whether or not a student is accepted depends upon the student's academic

	Total Applicants	Accepted	% Accepted	Population per Medical Student Accepted
1969-70	85	27	32	25,703
1970-71	69	33	48	21,042
1971-72	72	29	40	24,483
1972-73	106	38	36	18,921
1973-74	103	28	27	25,750
1974-75	93	33	36	22,273
1975-76	108	41	38	18,243
Total (Average) 1969-75	636	229	36	21,926

Table 5

A Comparison Between the Population per Medical Students for Montana and Nearby States With Medical Schools.

State	Average Population Per Medical Student Accepted (1969-75)
Colorado	18,245
Oregon	18,681
Utah	12,080
Washington	22,225
North Dakota	10,258
South Dakota	12,156

SOURCES:

1. Stritter, et al, "U.S. Medical School Applicants, 1969-70", **Journal of Medical Education**, Vol. 46, Jan. 1971, p. 40.
2. Dube', et al, "Study of U.S. Medical School Applicants, 1970-71", **Journal of Medical Education**, Vol. 46, Oct. 1971, p. 856.
3. Dube', et al, "Study of U.S. Medical School Applicants, 1971-72", **Journal of Medical Education**, Vol. 48, May 1973, p. 413.
4. Dube', et al, "Study of U.S. Medical School Applicants, 1972-73", **Journal of Medical Education**, Vol. 49, Sept. 1974, p. 860.
5. Dube', et al, "Study of U.S. Medical School Applicants, 1973-74", **Journal of Medical Education**, Vol. 50, Nov. 1975, p. 1023.
6. Dube', W. F., and Davis G. Johnson, Ph.D., "Study of U.S. Medical School Applicants, 1974-75", **Journal of Medical Education**, Vol. 51, Nov. 1976, p. 838.
7. Gordon, Travis L., "Descriptive Study of Medical School Applicants (1975-1976)", DHEW Publication No. (HRA) 77-52, Feb. 1977, p. 24.

record; home towns are not considered by the selection committee in Montana. On the other hand, an analysis of the home towns of the students in the program shows a wide geographical distribution generally representative of the entire state.

Since the first WAMI supported students are only now graduating, it is too early to investigate the number of students who return to practice in Montana, or what specialties they have chosen. It has been argued that since they receive part of their education and clinical training in Montana, they will be more apt to return here to practice.

Table 5 is presented to address the "equal access to education" issue. It shows that without a separate medical school, Montana students have a lesser chance of being accepted into medical school. The population per medical student ratio in Montana for the period between 1969 and 1976 is 21,926. Comparable ratios for nearby states are between 10,000 and 18,000 for all states except Washington, which is higher than Montana's ratio.

The impact of the WAMI Program increasing admissions can be seen starting with the 1975 class. On the other hand, it is noted that students are not just relying on the WAMI Program for medical school. For example, in the 1975 class, 38 Montana students were accepted—20 in WAMI, 5 in WICHE, and 13 in other medical schools not participating in these programs. The average Montana applicant in 1975 applied to 9.5 schools—up from 7.8 applications per applicant in 1967.

2. At the present time, there are no residency programs in Montana. There appears to be a great deal of interest in starting one, two, or three Family Practice residency programs in the state. These would probably be located in Missoula, Billings, and Great Falls.

Several studies have shown that the location of the physician's residency program plays a large role in determining where he practices. For example, the probability of a physician remaining in the state of his birth (being educated elsewhere) is about 28 percent. The probability of remaining in the state where he took his residency is about 72 percent and the probability of remaining in the state where he was both born and took his residency is 75 percent.

For Montana, the minimal number of students who could be trained in any one program is 8. Its annual budget would be approximately $450,000 per year for annual cost of $55,000 per resident. After each program becomes operational it will probably generate about half its budget through patient charges.

Current thinking calls for a relationship to be developed with the Department of Family Practice at the University of Washington. The program is to be phased in one city at a time, and the first year's training may be given to residents in Spokane and the next two in either Billings, Missoula, Great Falls — whichever site is picked to be first. Eventually all three years would be in Montana.

3. A number of physician recruitment programs have been established in Montana. Besides individual community efforts at the local level, these include:

- — Health Systems Research Institute (Salt Lake City),
- — The Montana Medical Association's efforts,
- — The Western Health System's Clearinghouse (Rapid City, South Dakota),
- — The National Health Service Corps (NHSC), and
- — Rural Health Initiative Programs.

The Health Systems Research Institute (HSRI) in Salt Lake City is a non-profit organization which has operated a hospital management program since April, 1974. As part of

its program package, physicians and other health care personnel are placed in communities which contract with HSRI. At this time, five communities in Montana (Cut Bank, Shelby, Poplar, Big Timber and Harlowton) have HSRI contracts. Yellowstone National Park also uses HSRI physicians. Glacier County's (Cut Bank) contract with HSRI has totaled $714,000 over a two-and-one-half year period, ($200,000 per man year). Although this has not been as much as the revenue generated, authorities in Cut Bank believe that eventually it will exceed the county's cost.

The Montana Medical Association (MMA) maintains an active physician referral service. All inquiring physicians are asked to send their curriculum vitae, which then go to the areas needing the particular services offered by the physician. All inquiries are also listed in the bi-monthly bulletin distributed to approximately 120 subscribers. The MMA gets about 20 requests per month; however, there is no data on the number of placements made.

The Western Health Systems (WHS) Clearinghouse is a referral and placement program that receives a portion of federal grant money through the Old West Regional Commission. Since beginning operations in July, 1976, WHS has placed a physician in Sidney, Montana. Several placements are currently being negotiated, but the placement process often takes six to 12 months. Any inquiries from physicians interested in practicing in Western Montana are forwarded by WHS to the Montana State Agency of Health Planning and Resource Development which, in turn, forwards them to communities, hospitals, and individuals that have expressed a need for a given health care practitioner.

The National Health Service Corps (NHSC) is a federally sponsored program administered through the Public Health Service. It is designed to deal with the maldistribution problem by working with communities which have or will have a shortage of medical manpower. This program places Corps physicians in these shortage areas for two years.

When a physician is placed, the NHSC underwrites his practice, pays his salary and pays back his student loan, if necessary. The community agrees to provide an office and supplies as well as hire the support staff necessary. The community cost in starting a NHSC practice varies depending on whether a hospital or clinic is already there for the practice. The minimal start-up costs for equipment and supplies are between $10,000 and $15,000. In addition, the community is expected to pay the NHSC for physician costs to the best of its ability. This amounts to between $20,000 and $33,000 a year, depending on whether or not the physician is paying off a student loan. The money generated from the practice is used to pay off these costs.

The retention rate of NHSC physicians in shortage area communities has risen from 2 percent in 1972 to 30 percent in 1975. In Montana there are currently nine communities with NHSC primary care physicians. They are:

- Poplar (1 physician)
- Wolf Point (1 physician)
- Glasgow (1 physician)
- Chester (2 physician)
- St. Ignatius (1 physician)
- White Sulphur Springs (2 physicians)
- Harlowton (1 physician)
- Roundup (1 physician)
- Hardin (2 physicians)

To be designated a critical medical manpower shortage area, a community must have a population to physician ratio of 3,500:1. Communities with a ratio of 3,000:1 may qualify for assistance if other indicators of need are significant. In Montana, this means the following counties can be designated as critical manpower shortage areas:

- Glacier
- Pondera
- Blaine
- Granite (currently losing its only physician)
- Musselshell
- Big Horn
- Phillips
- Valley
- Cnouteau (now with only two physicians)
- Garfield (currently having no active physicians)

Furthermore, under new regulations, all Indian Reservations automatically qualify as critical manpower shortage areas.

The Rural Health Initiative (RHI) is another federal program in Montana engaged in physician recruitment and placement. In the past these programs have relied on recruiting from the private sector and on NHSC placements. To be eligible for RHI funds, communities must be designated as a Medically Underserved Area, which uses an index based upon the following four items:

- The ratio of primary care physicians to population,
- the infant mortality rate,
- the percentage of the population which is over 65, and
- the percentage of the population with family income below the poverty level.

Figure 1 shows those counties designated as medically under-served areas and the areas currently receiving RHI funding.

The nurse practitioner is a primary care provider prepared to give continuous, personalized care to the patient/client at his point of entry into the health care system and to continue as the individual's care provider. The delivery of health care in rural areas is not solely concerned with medical care but with health in a broader context. This broader context encompasses environmental and preventive health care, nutrition, physical and mental well-being, as well as medical care. More than 70 percent of the health problems in rural America are chronic health problems that limit activity and require continuous health supervision and support in order for the individual to accommodate them and enjoy a meaningful lifestyle. Within the rural population itself, these chronic health problems are greatest among middle and older age groups. Nurse practitioners possess the appropriate combination of physical and psycho-social skills to meet these needs. The physician is the recognized expert in medical aspects of health care and the nurse in nursing aspects. The roles of each are complementary and not substitutive.

Montana has 30 nurse practitioners collaborating with physicians. Figure 2 shows the geographical distribution of these professionals.

Most practice in primary care settings with physicians or work in state insitutions, nursing homes, family planning agencies and public health departments.

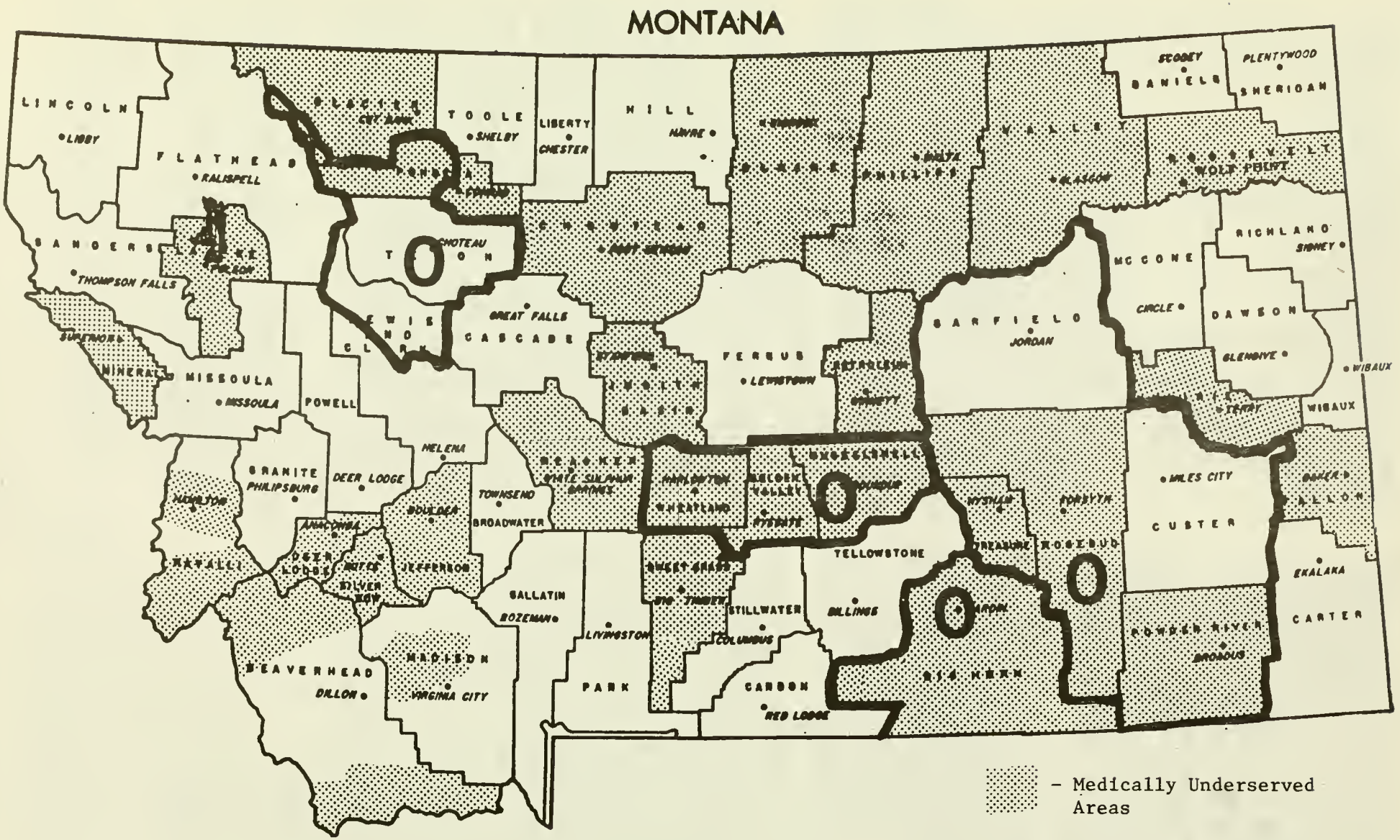


Figure 1 - Location of Medically Underserved Areas and Rural Health Initiative (RHI) Programs in Montana.

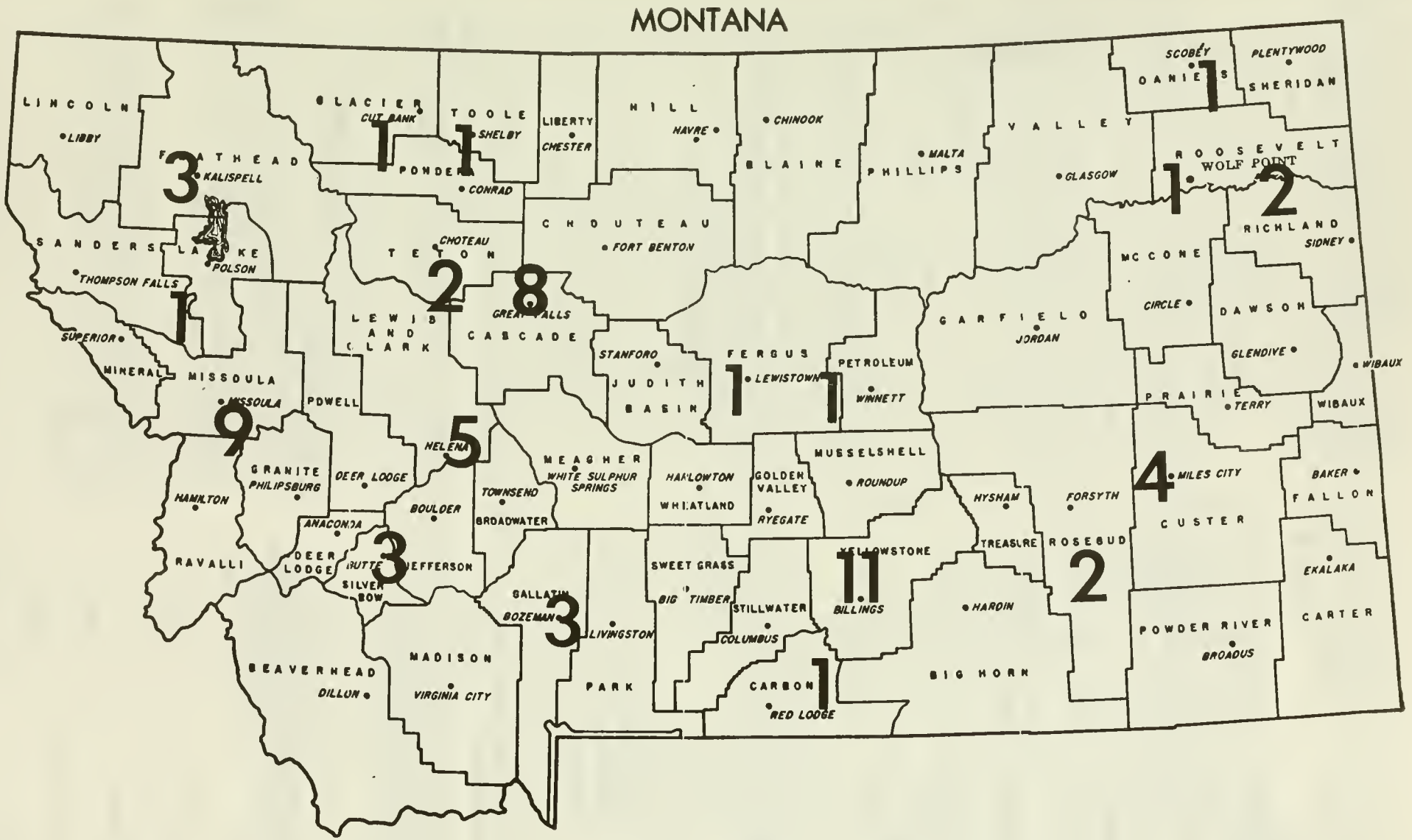


Figure 2 - Location of Nurse Practitioners in Montana.

Source: Montana Nurse Practitioners Interest Group of the Montana Nurses Association, updated, 1977.

	North-western	North Central	South-western	South Central	Eastern	State
Estimated 1985 Population	206,093	156,766	205,798	180,819	110,252	859,729
Estimated Number of Physicians Needed:						
• General/Family Practice	82	63	82	72	44	343
• Internal Medicine	21	16	21	18	11	87
• Pediatrics	21	16	21	18	11	87
• Obstretics/Gynecology	21	16	21	18	11	87
TOTAL	145	111	145	126	77	604
Estimated Number of Current Physicians Still Practicing In 1985						
• General/Family Practice	49	29	61	37	30	206
• Internal Medicine	27	15	13	27	3	85
• Pediatrics	7	6	5	6	1	25
• Obstetrics/Gynecology	9	7	7	11	2	36
TOTAL	92	57	86	81	36	352
Estimated Need Per Year						
• General/Family Practice	5.6	5.7	3.6	5.9	2.3	23.1
• Internal Medicine	0	0.2	1.3	0	1.3	2.8
• Pediatrics	2.3	1.7	2.7	2.0	1.7	10.4
• Obstetrics/Gynecology	2.0	1.5	2.3	1.2	1.5	8.5
TOTAL	9.9	9.1	9.9	9.1	6.8	44.8

TABLE 6 - Estimated Number of Primary Care Physicians Needed in Montana in 1985 by Subarea and Specialty Grouping

Specialty	Potential Increase in Productivity	Proportion of Physicians Employing Physician Extenders 10%	25%
General Practice	16-36%	2-4%	4-9%
Pediatrics	18-30%	2-3%	4-7%
Obstetrics	25%	2.5%	6%

Table 7

Potential Reduction in the Need for Selected Groups of Physician Manpower if Physician Extenders Were Employed by a Given Percent of the Physicians.

SOURCE: Applied Management Science, **The Effects of Task Delegation on the Requirements for Selected Manpower Categories**, Contract No. NIH 72-4406, prepared for the Division of Manpower Intelligence, Bureau of Health Manpower Education, National Institutes of Health, Bethesda, Maryland, May 25, 1973.

2.3 COST

The annual costs for four strategies to recruit primary health care providers to Montana may be summarized as follows:

Strategy	Cost Per Student Per Year (Dollars)
WICHE (Western Interstate Commission For Higher Education)	12,333
WAMI (Washington, Alaska, Montana and Idaho)	18,421
Family Practice Residency Program (in one Montana city)	55,000
NHSC (National Health Service Corps)	30,000-48,000

3.0 FUTURE RESOURCE REQUIREMENTS

3.1 AVAILABILITY

This section will attempt to estimate the number of additional primary care physicians needed in Montana by 1985 **and to develop reasonable strategies for their recruitment and retention** in needy areas. It is felt that the need for other specialists in the state is less critical and will largely take care of itself.

The Employment Security Division of the Department of Labor and Industry, estimates Montana will need 1,157 physicians by 1985. It estimates a need of 65 physicians a year. They do not separate requirements into specialty groupings.

Several professional groups and studies have suggested ideal population to physician ratios. These vary considerably from one reference to another. In estimating Montana's future need for primary care physicians, the following ratios will be used:

- — General/Family Practitioner for every 2,500 persons
- — 1 internist for every 10,000 persons
- — 1 Pediatrician for every10,000 persons
- — 1 Obstetrician and Gynecologist for every 10,000 persons

It is emphasized that the above numbers are ideal ratios which may never be realized. They lead to higher estimates than the Department of Labor and Industry's projections. Nevertheless, they may well serve as planning goals.

Another assumption used in estimating the future needs for physicians is the separation rate (the percentage who die, retire, quit practicing or move out-of-state). The Bureau of Labor Statistics estimates that the 1970 separation rate for Montana physicians and osteopaths was 3.64 percent.

3.2 ACCESSIBILITY

Table 6 shows the estimated number of primary care physicians per year, with the greatest need being for family practitioners.

The state's ability to attract this many physicians cannot be evaluated at this time. A number of physicians voluntarily come to this state to practice. This group has constituted Montana's primary source of physician manpower. It appears that organized recruitment programs have not been responsible for attracting them. In fact, the sporadic efforts of individual communities may have been more effective. Programs like HSRI and WSR have contributed little to Montana's overall supply of physicians, although there is no question that they have helped individual, selected communities.

The educational programs supported by the state have the ability to graduate about 32 physicians a year (20 from the WAMI program and 12 from the WICHE program). The specialty distribution of these physicians and the percentage returning to Montana is not known at this time.

It has been observed that the establishment of Health Maintenance Organizations, the increased use of nurse practitioners, and more group practices would decrease the number of physicians needed.

Yet, the viability and feasibility of Health Maintenance Organizations still need to be tested in rural areas. So far, no HMO has been successfully implemented in Montana.

An example of the potential reduction in physician manpower which might be realized if more Physician Extenders were commonly used is presented in Table 7. For example, if 10 percent of the general practitioners in solo practice were to use nurse practitioners, the need for general practitioners would be reduced somewhere between two and four percent.

The proliferation of group practices in Montana to the point where the shortage of primary care physicians is eliminated is not generally feasible. Because of our sparsely populated areas, only one or two physicians are needed.

3.3 COST

One of the most promising concepts for physician recruitment is the establishment of family practice residency programs in some of Montana's larger hospitals. When fully implemented each program could produce four family practitioners a year, of which three would probably choose to practice in Montana. The annual cost for this program would be approximately $55,000 per student.

Programs are currently being developed and implemented at Montana State University School of Nursing to prepare nurses at the graduate level in primary health care.

4.0 GENERAL ANALYSIS

4.1 ALTERNATIVES AND ISSUES

Adequate provision of primary care for many remote ranch areas in Montana continues to be an issue.

The Licensure of nurse practitioners and their acceptability by fellow providers and consumers remains a problem and an issue in Montana.

The maldistribution of physicians in Montana and the difficulty in providing professional associations (peer group) environment in many of the smaller communities of the state continue to represent problems in balancing the primary care system.

REFERENCES

1. *Revised Codes of Montana,* RCM-1947, Title 66, Section 66-102.
2. *Federal Register,* "Criteria for Designation, Health Manpower Shortage Areas" Vol. 43 No. 6, Tuesday, January 10, 1978.
3. *Revised Codes of Montana*, RCM-1947, Title 66, Section 66-1222 3(a).
4. Letter from Robert L. Woodahl, Attorney General, to Mrs. Gertrude Malone, Executive Secretary, Montana Board of Nurses, August 28, 1975, Vol. No. 36, Opinion No. 18.
5. Western Interstate Commission for Higher Education, *A Study of Medical Graduates of the WICHE student Exchange Programs showing the Relation of that Group to the Medical Manpower of the Sending States*, January, 1978.
6. Gordon, I.L. "Discriptive Study of Medical School Applicants" (1975-1976) DHEW Publication No. (HRA) 77-52, February, 1977.
7. Stritter, et al, "U.S. Medical School Applicants, 1969-1970," *Journal of Medical Education*, Vol. 46, January, 1971.

5.2
DENTAL PERSONNEL

GOAL:

Montana residents should have reasonable access to quality dental care.

OBJECTIVES:

1. Montana should strive to maintain an overall population to active general dentist ratio of 2,500:1 in each subarea.
2. There should be at least 40 active dental hygienists for every 100 general dentists in each subarea.
3. Through 1985, the two state-supported dental training programs (WICHE and Minnesota) should continue to be supported by state funding.
4. Carroll College should continue to offer the Dental Hygienists Program.
5. By 1985, the feasibility of establishing another school for dental assistants should be investigated.
6. The National Health Service Corps (NHSC) Dental Program should be used to place dentists only in shortage areas where viable, self-supporting practices can be developed. At the present time Liberty County is designated as a critical manpower shortage area. If the present Public Health Dentist purchases the practice and stays in Chester, this area should be removed from shortage area status.
7. The areas currently having NHSC dentists are Roosevelt, R[illegible]l and Treasure Counties. If they should lose their NHSC dentist, the MHSA should, at that time, reassess their status as a shortage area.

LONG RANGE ACTION

1. By 1983, study the manpower dental needs of the State of Montana:
   - — From a statewide perspective, determine if or where the need exists for NHSC Dental Programs.
   - — Place special emphasis on energy impact communities such as Colstrip.
   - — Private dentists should be encouraged to meet the needs wherever feasible.

1.0 BACKGROUND

1.1 SERVICE DEFINITION

Dentistry is that branch of the health professions responsible for maintaining and improving the oral health of the public. The primary provider of dental care is the dentist. Assisting the dentist, and, in effect, extending the dentist's own productive capacity are three categories of dental auxiliaries: **dental hygienists, dental assistants,** and **dental laboratory technicians.**[1]

1.2 SERVICES AND SETTINGS

As a primary provider of dental care, the dentist has final responsibility for the delivery of all dental services. More than 70 percent of the dentists in the United States are general practitioners in solo private practices. However, the number of group practices and specialty practices has been increasing.

The dental hygienist, working under the direction of a dentist, performs the tasks of dental prophylaxis (scaling and polishing teeth), exposing and processing dental radiographs (X-rays), applications of fluorides and other preventive agents to teeth, and instruction of patients in oral hygiene techniques and proper diet. The great majority of dental hygienists work in private dental offices. The remainder are employed in public and private schools, clinics, hospitals and other institutions.

The dental assistant's primary function is to assist the dentist as he treats his patients. The assistant's tasks include preparation of the patient, maintaining a clear operating field, passing instruments and materials to the dentist and preparation of materials used in treatment.

Dental laboratory technicians manipulate and shape materials to construct complete and partial dentures, crowns, bridges and orthodontic devices. Most dental technicians work in commercial dental laboratories. However, increasing numbers are being employed by private dental practitioners.

In Montana, only dentists and dental hygienists are required to be licensed. A dental assistant may become a Certified Dental Assistant (CDA) by passing an examination conducted by the Certifying Board of the American Dental Assistants Association. In order to pass this examination, a dental assistant must demonstrate proficiency in a number of dental skills. Because these skills are taught at all accredited dental assistant schools, graduates of these schools generally are certified. At the present time in Montana, these skills and abilities of the Certified Dental Assistant are not being recognized.

1.3 TRENDS

Nationally, the projection of a large increase in the number of dentists in the years ahead, combined with an expected fairly steady rate of population growth, will result in a significant increase in dentist to population ratios. The national ratio of 52 active civilian dentists per 100,000 civilian population in 1977 is projected to increase considerably to 62 in 1990.

A second trend, noted by periodic American Dental Association surveys, is the steady increase in the proportion of independent dentists who use one or more dental auxiliaries. By 1975, 96 percent of all independent dentists—an overwhelming majority—employed at least one auxiliary of some type, a significant increase from 77 percent in 1955. Well over 90 percent of the independent dentists employed one or more dental assistants in 1975, an increase of 22 percent since 1955. Much more dramatic, however, is the rise in the percentage of independent dentists employing one or more dental hygienists; this increased from only 10 percent in 1955 to 41 percent in 1975.[2]

A comparision of the number of active dentists and population to dentist ratios between Montana and the United States is presented in Table 1. Although Montana has in the past had more population to be served by each dentist than the national average, it appears that this may have changed in recent years. Between 1973 and 1977 there appears to have been a substantial rise in the number of dentists practicing in the state.

It is presumed that Montana dentists are also following the national trend in the increased use of dental auxiliaries.

Year	Number of Active Dentists U.S.	Montana	Population to Dentist Ratio U.S.	Montana
1965	86,317	337	2,223	2,095
1967	90,716	318	2,157	2,204
1968	92,013	318	2,147	2,179
1969	92,984	320	2,147	2,169
1970	95,422	314	2,107	2,210
1971	97,210	316	2,101	2,247
1972	97,970	315	2,107	2,283
1973	100,780	330	2,065	2,283
1976	111,178	380	2,186	1,982
1977	112,720	409	1,905	1,855

Table 1 - Number of Active Dentists and Population to Dentist Ratios for Montana and the U.S. for Selected Years.

Sources:

1) U.S. Department of Health, Education and Welfare, Public Health Service. Health Resources Administration, National Center for Health Statistics, Health Resources Statistics, Health Manpower and Health Facilities. Respective Years. Rockville, Maryland. (The publication reports data two years old.)

2) Dental Manpower Fact Book, U.S. Department of Health, Education, and Welfare.

3) American Dental Association, Bureau of Economic Research and Statistics. Distribution of Dentists in the United States by State Region, District and County, 1976. Chicago, Illinois, 1976.

4) Data compiled from recent inventory of dentists in Montana.

2.0 CURRENT SITUATION

2.1 AVAILABILITY

A survey conducted by the State Dental Bureau, Februarv. 1981, indicates that there are 497 dentists practicing in the State of Montana.

Table 2 shows the number of practicing dentists in each location. Note should be made that some dentists work part-time and also many small communities are served by dentists willing to travel from more populated areas one or two times a week.

2.2 ACCESSIBILITY

Montana has no dental school and is, therefore, dependent upon out-of-state institutions for its dental practitioners. In addition, Montana has no reciprocity agreement with any other state. All dentists licensed in Montana must take the state board examination.

Currently there are two educational programs for dentists sponsored by the state (the WICHE Student Exchange Program and the Minnesota Program) and one placement program (the National Health Service Corps). In addition, the State Dental Bureau assists in placement by publishing a small pamphlet for dentists expressing an interest in practicing in Montana.

The general intent of these state supported educational programs is two-fold. One is to provide a sufficient number of specific types of trained professionals for Montana. Equally important is providing Montana students an opportunity to obtain a professional education they might not otherwise get.

The WICHE Student Exchange Program helps students in Western states obtain access to fields of professional education not available in their home states. In dentistry, UCLA, UCSF, Loma Linda University, University of the Pacific, USC, University of Oregon and the University of Washington are currently participating in the program. Each

student must be accepted by one of the schools on his/her own merit. Once accepted, the State of Montana pays a given amount to the school and the student pays in-state-tuition. In the 1980-81 school year the state spent $223,165 for the education of 10 students.

Tracking the students graduating between 1970 and 1977, it is interesting to note that 48 percent are currently practicing in the state and 33 percent in the Armed Services. Most of the WICHE dentists practicing in Montana returned to their original home towns.

In summary, it costs approximately $10,300 per student per year in the WICHE Program ($41,200 for four years). The State can expect about one-half of the students to return to Montana.

The second educational program sponsored by the State is a similar arrangement with the University of Minnesota. This program was set up by the Rural Dental Act of 1975. Part of this program provided for students to receive some of their practice training in the offices of Montana dentists. However, because of conflict with the Dental Practice Act, this part of the program has not been successfully implemented.

At the present time, 16 Montana students are in the Minnesota Program. The cost of the program is similar to the WICHE Program, $10,300 per student per year.

The most active placement program in Montana is the National Health Service Corps. This program places dentists in designated dental shortage areas for two years. The contract can be renewed for a second two years. It is expected that most practices should be able to do without NHSC assistance after the first two years.

When a dentist is placed, the NHSC underwrites the practice, pays the dentist's salary and pays back his student loan. In some cases, the dental equipment is also purchased by the NHSC.

A dentist is placed on site only after a local community group has agreed to furnish a facility and take financial responsibility for the practice. The community is also expected to pay back the government's cost and the practice's overhead from the revenue generated. This amounts to about $50,000 per year if no equipment has to be purchased. (The average NHSC dentist's salary is $20,447 per year if no student loan has to be repaid and $30,447 if a student loan has to be paid.) The National Health Service Corps feels that the practice can be viable if the dentist can see between seven and fifteen patients a day.

Nationally, 45 percent of the Corps dentists have extended for another two years, 22 percent left the Corps but remained on site, and 32 percent left both the Corps and the community. In Montana, there are currently three communities with NHSC dentists. They are: Poplar, Chester and Colstrip.

One problem with the National Health Service Corps dentists is that they need not be licensed in Montana. The Denver Regional Office, however, has developed a policy that each assignee take the examination as soon as possible after placement. If they do not get a Montana license, they cannot write prescriptions or get Medicaid reimbursement because they can't get a Medicaid Provider Number. If the federal government buys their equipment, they may be faced with repair and maintenance problems since supply companies are reluctant to service equipment not purchased from them.

DENTAL HYGIENISTS

Nationally, during the period 1950-1970, the ratio of active dental hygienists per 100 active dentists rose from 4 to 15, indicating that the number of dental hygienists increased substantially faster than the number of dentists. After 1970, there was an even greater increase in dental hygienists so that, by 1977, the ratio of active dental hygienists per 100 active dentists was 27. Montana showed a significantly lower rate: 19 hygienists per 100 dentists.[3]

The Montana State Department of Professional and Occupational Licensing indicates by its October 15, 1980 statistics that a total of 213 dental hygienists are licensed in the state of Montana. However, this number does not give a true indication of how many are currently practicing in Montana. The number includes non-residents who keep their license current but are not actually practicing.

The Department has proposed a plan before the legislature to include in the statistics indicators of "in-active" status. Many hygienists work part-time and several work for more than one dentist. This further complicates the problem of determining the exact number of practicing Dental Hygienists.

Carroll College currently has the only dental hygiene program in the state. This is a relatively new four-year program, having it's first class graduate in 1976. The average class size at Carroll is 20 students. The administrators of the program have reported 100 percent placement of its graduates so far. Approximately fifty percent remain in the state of Montana.

Since Carroll College is a private institution, it is not eligible for state support. The dental hygiene program was initiated with a grant from the Veterans Administration but the funding has expired. The program is needed, but costly for the college to operate.

Until recently, Montana has aiso participated in a WICHE Student Exchange Program for Dental Hygienists. The program has been phased out because the state now has a dental hygiene program at Carroll. Thus, the last WICHE dental hygiene students to be supported graduated in June, 1979.

The National Health Service Corps also helps place dental hygienists in shortage areas under arrangements similar to their physician and dentist programs. However, no explicit criteria have been used to govern these placements and no NHSC dental hygienists have been placed in Montana.

DENTAL ASSISTANTS

In the years from 1950 to 1977, the number of active dental assistants in the United States increased substantially from 55,200 to 144,700, or more than two and one-half times. The largest part of the increase took place in the 1965-1977 period, when the number increased by some 57,000. The ratio of active assistants to active dentists rose from 70 to 100 in 1950, to 91 per 100 in 1965, to 123 per 100 in 1977. The 1977 statistics show Montana as being very near the national average with 120 dental assistants per 100 dentists in the state.[4]

The majority of dental assistants have been trained by their dentist employer. However, over the past decade, nationally the number of graduates from accredited programs has increased from 1,242 to 5,972, and the number of programs has increased from 64 to 250.

The Great Falls Vocational Technical Center provides a program for Dental Assistants. The course is offered twice a year and graduates approximately fifteen to twenty per year. The majority of these students are employed in the state.

2.3 COST

The costs of three strategies designed to amelicrate dental manpower problems in Montana are summarized below.

Strategy	Cost Per Student Per Year (Dollars)
WICHE (Western Interstate Commission For Higher Education)	10,300
Minnesota Program	10,300
NHSC (National Health Service Corps)	20,000-30,000

3.0 FUTURE RESOURCE REQUIREMENTS

3.1 AVAILABILITY

Currently the number of dentists in the state appears to be adequate to meet the needs of the population. The distribution problem is being solved by a willingness on the part of dentists to live in rural areas.

As can be noted on Table 2 several dentists practice in more than one location. Some rural areas are served by dentists willing to travel from more populated areas.

3.2 ACCESSIBILITY

The state should attempt to maintain a population to dentist ratio of 2,500:1. There will be a need for new dentists to replace those lost by attrition. It is assumed that most will be voluntarily attracted to Montana without any formal recruitment or educational support program. It appears that other areas of the nation are experiencing a surplus of dentists, thus more dental graduates may be attracted to Montana. For the years 1976 and 1977, for example, Montana averaged 15 newly licensed dentists per year who fell into this category. Only four of these 30 new dentists had participated in the WICHE program.

At the present time Montana has 20 students in the WICHE program and 16 in the Minnesota Program. With ten graduating each year we can anticipate approximately five of these will end up practicing in Montana. Combining this resource with those out-of-state dentists willing to locate in Montana, it can be expected that the State's needs for dentists will be continually met.

DENTAL AUXILIARIES

It is expected that by 1985 the need for dental auxiliaries will increase significantly. Clinical studies have shown that a dentist working with an auxiliary is about 30 to 33 percent more productive than a dentist working alone.[5] This may increase as the auxiliary is allowed to perform even more functions.

In order to reach the goal of 40 active hygienists per 100 dentists in Montana by 1985, it is estimated that Montana will have to license 35 hygienists per year. In the past several years this quota has been met. However, approximately one-half of the graduates of Carroll College's program are out-of-state residents who will not end up practicing in Montana. Maintaining the level of new dental hygienists depends upon out-of-state educational institutions over which the state has no control.

With respect to the need for dental assistants, if the assumption is made that the dental assistant-dentist ratio will remain the same until 1985, and allowing for a minimal attrition rate, an additional 169 dental assistants would be needed. If the assumption is made that the number of employed dental assistants will increase at just one-half the rate that it has increased nationally during the past ten years (150 percent from 1965 to 1975), then an additional 439 dental assistants would be needed. A median figure would be 304.

To meet this demand, 43 dental assistants would be needed each year. Should the trend continue for dentists wanting assistants that have been trained at an accredited dental assistant school, then 14 additional assistants would be needed in addition to those graduated from the Great Falls Vo Tech Center. These additional dental assistants would either have to be recruited from sources outside the state, or else additional training facilities would have to be established within the state. Since there are just five dental assistant schools in the four surrounding states of Idaho, Wyoming, North Dakota and South Dakota, (plus an additonal two in the Spokane, Washington area), it may be advisable to consider facilities within the state.

Records show that two-thirds of 1979's graduating classes from the Great Falls Vo Tech Center obtained employment in Great Falls and the immediate vicinity. Judging from this, the Billings area might bear investigating as an additional site for a dental assistant program.

No estimate of the future need of dental laboratory techinicians can be made at this time.

3.3 COST

The NHSC does meet a need but should be used to place dentists only in shortage areas where viable, self-supporting practices can be developed. Before any new areas are to be designated, evidence must be provided, either through the county commissioners, local dental society, or by community petition, that there is broad-based community support for a NHSC dentist. The program should not discourage private dentists from setting up practices in these communities.

Three options may be considered to reach the goal of 40 active hygienists per 100 dentists. First, the WICHE Student Exchange Program may be reinstated; second, a dental *hygienist program* may be instituted in the Montana University system; third, the state can continue to rely on out-of-state educational institutions. The second option would be the most costly. The program at Carroll College is of high quality but expensive to administer. The cost of duplicating it in a University system may be prohibitive.

4.0 GENERAL ANALYSIS

4.1 ALTERNATIVES AND ISSUES

As dentists continue to employ auxiliaries and utilize highly technological equipment the number of dentists needed to serve a particular population should decrease. In the 1980 Montana Health Systems Plan it was estimated that one dentist was needed per 2,000 population. Currently the ratio has been increased to 1:2,500. The 1980 population of the State of Montana is 790,030. The current number of dentists practicing in the State is 497 which provides a ratio of 1.6 dentists per 2,500 population. This ratio exceeds the 1:2,500 need projection.

Distribution is a factor. Billings has 78 practicing dentists. According to the 1980 population total of 71,440, Billings has 2.7 dentists per 2,500. However, in the Eastern part of the state there are some areas which fall below the ratio. It does appear, however, that the maldistribution of dentists in Montana is not as severe as that of other health professionals.

There is a willingness on the part of dentists to locate in rural areas. Those areas, where resident dentists do not practice, are being served by dentists traveling from neighboring towns one or two days a week.

Location	Number of Practicing Dentists
Absarokee	1
Anaconda	8
Baker	3
Belgrade	2
Big Fork	1
Big Timber	1
Billings	78
Boulder	3 (Also Helena)
Bozeman	31
Bridger	1
Broadus	1 (Also Hardin)
Butte	34
Chinook	2
Chester	1 (NHSC)
Choteau	2
Circle	1
Colstrip	1 (NHSC)
Columbus Falls	4
Columbus	3
Conrad	3
Crow Agency	1
Culbertson	1 (Half time)
Cut Bank	4
Deer Lodge	4
Dillon	5 (1 Part-time, 1, Twin Bridges)
Drummond	1 (Also Philipsburg)
Ennis	1
East Helena	1
Eureka	3 (Also Whitefish, one day per week)
Fairfield	2
Florence	1
Forsyth	4
Fort Benton	2
Glasgow	7 (1 also in Wolf Point)
Glendive	7
Great Falls	60 (2 also in Stanford & 2 in Lewistown)
Hamilton	10 (1 Missoula Oral Surgeon-1 day per week), 1 other 1 day per week
Hardin	3 (1 also Broadus, 1 Billings Orthodontist, 1 day per week)
Harlowton	1
Havre	11 (2 Great Falls Orthodontists, 1-1 day per week & 1-4 days every three weeks)
Helena	31 (1 also in Townsend, Butte, Boulder River School, & 2 in Boulder)
Kalispell	27 (1 also Libby, 2 Missoula oral surgeons 2 days per week)
Lakeside	3
Lame Deer	IHS
Laurel	5
Lewistown	7 (1 Great Falls Orthodontist, 5 days per month)
Libby	7 (1 also in Kalispell)
Livingston	11 (1 also in Culbertson, 2 Bozeman Orthodontists 1/2 day per week)
Lolo	1
Malta	2
Manhattan	1
Miles City	6
Missoula	64 (2 also Seeley Lake, Hamilton, Victor, Kalispell, & 1 in Butte)
Philipsburg	1
Plains	1
Plentywood	2
Polson	5
Poplar	1 (NHSC)
Red Lodge	2
Ronan	2
Roundup	2 (Also in Billings)

TABLE 2

Number of Practicing Dentists in Montana (By City)

Location	Number of Practicing Dentists	Location	Number of Practicing Dentists
St. Ignatius	1	Townsend	3 (Helena Orthodontist 1/2 day per month)
Scobey	1	Twin Bridges	1 (Dillon, 1/2 day per week)
Seeley Lake	2 (Also in Missoula)	Victor	2 (Also Missoula)
Shelby	3	Warm Springs	1
Sheridan	1	West Yellowstone	2
Sidney	6	Whitefish	6 (Also Eureka)
Stanford	2 (1 in Great Falls 2 days per week, & 1 also Great Falls)	Whitehall	1 (Also Butte)
Stevensville	1	White Sulphur Springs	1
Superior	1	Wolf Point	3 (1 Glasgow Orthodontist 2 days per month)
Thompson Falls	2		
Troy	1	Worden	1 (Billings 1 day per week)
Three Forks	1		

TABLE 2 (Continued)

Number of Practicing Dentists in Montana (By City)

Source: Complied by the Dental Bureau, Montana State Department of Health and Environmental Sciences February, 1981

In the coming years some Montana communities will experience accelerated growth associated with rapid energy development. Many are small rural or semirural communities with few dentists. If the demand for services in a community bears a linear relationship to the number of inhabitants, then the consequences of any population increase, be it gradual or explosive, should be a concomitant, proportional increase in the demand for services.

Presently, Colstrip, Montana is a good example. A NHSC dentist is located in Colstrip, but additional dental services are needed. Private dentists should be encouraged to explore practices in these energy impact communities.

The NHSC does meet a need but should be used to place dentists only in shortage areas where viable, self-supporting practices can be developed. Before any new areas are to be designated, evidence must be provided, either throught the county commissioners, local dental society, or by community petition, that there is broad-based community support for a NHSC dentist. The program should not discourage private dentists from setting up practices in these communities.

REFERENCES

1. Montana Commission on Post-Secondary Education, *Technical Group Report No. 5, Health Care Education*, May, 1974.
2. *Dental Manpower Fact Book* U.S. Department of Health, Education and Welfare, Public Health Service Health Resources Administration, DHEW Publication No. (HRA) 79-14, March 1979, Page 31.
3. Ibid Number 2, Page 63.
4. Ibid Number 2, Page 64.
5. Cole, R.B. & L.K. Cohen, "Dental Manpower" *Millbank Memorial Fund Quarterly*, Vol. 49, July, 1971. Lotzkar, S. *et al*, "Experimental Program in Expanding Functions for Dental Assistants: Phase 1, Baseline and Phase 2, Training", *JADA*, Vol. 82, January 1971.

5.3

FEDERAL PRIMARY CARE PROGRAMS

(Rural Health Initiatives, Urban Health Initiatives, Primary Care Research and Demonstration Projects, National Health Service Corps Sites and Rural Health Clinics)

GOAL:

Primary medical care services should be available to Montanans as cost effective as possible. Federal primary health care programs should be involved in the administration, development and operation of clinics and satellite clinics and support of small, rural hospitals in their respective catchment areas.

OBJECTIVES:

1. To recommend priority funding to those Montana RHI and PCRD Programs which provide primary health care services and/or operate clinics and satellite clinics in Medically Underserved Areas.
2. To encourage, where feasible, the use of midlevel practitioners in collaborative practice with general physicians. Rural clinics using federal funds should be encouraged to seek certification as Rural Health Clinics. As such, they become eligible for Medicare and Medicaid reimbursement for services provided by their midlevel practitioners.

LONG RANGE ACTIONS:

1. By June, 1981, the professions should identify those provisions of the various practice acts which presently inhibit the establishment of federally certified Rural Health Clinics in Montana and work toward common solutions.

1.0 BACKGROUND

1.1 SERVICE DEFINITION

Primary care is the initial type of medical care sought by the public for health problems of a general nature. In recent years, the federal government has sponsored grants to develop these health services in rural areas. These programs include:

— *Rural Health Initiatives (RHIs)* — These programs are designed to integrate existing federal programs in Medically Underserved Areas to improve the delivery of health care. Three objectives of the RHI program are: to provide primary care services, to move toward economic viability, and to attract and use non-physician personnel wherever possible to extend the capacity of physician providers. To meet these objectives, grants in a maximum amount of $433,000 per year for three years can be awarded to selected communities.

— *Urban Health Initiatives (UHIs)* — These programs are similar to RHIs except they are aimed at Medically Underserved Areas within Standard Metropolitan Statistical Areas (SMSA).* Some of the objectives of the UHI program are to emphasize viable group practices and to integrate National Health Service Corps personnel with other health professionals in an effort to retain them longer in the community and thus maintain continuity of care.

— *Primary Care Research and Demonstration Projects (PCRD)* — These projects stress innovative methods of delivering and financing health care services in rural areas. Funds awarded under the PCRD program are used for research and demonstration projects only. The dollar amount of funding is approximately the same as that for RHI and UHI grants.

— *National Health Service Corps (NHSC) Sites* — These are projects located in Health Manpower Shortage Areas and staffed by physicians in Government service and other providers federally salaried. Many RHIs and UHIs use National Health Service Corps providers in their programs. All NHSC clinics must charge for services rendered.

— *Rural Health Clinics* — These are Primary Care Clinics certified by the Federal government and staffed with Nurse Practitioners and/or Physician Assistants. A physician may or may not be physically present at the clinic. The Rural Health Clinics Act (P.L. 95-210) allows certified clinics to be reimbursed by Medicare and Medicaid for the services provided by Nurse Practitioners and Physician Assistants.

* Billings and Great Falls (60,000 or more population) are the only two SMSAs currently in Montana.

The programs addressed in this component are closely tied to the Primary Health Care Personnel component of the Health Systems Agency Plan. This component deals with specific programs while the Personnel Component deals with manpower problems.

1.2 SERVICES AND SETTINGS

Rural Health Initiatives, Urban Health Initiatives, Primary Care Research and Demonstration Projects, National Health Service Corps sites and Rural Health Clinics are all federal programs which may be inter-related. For example, a Rural Health Initiative program may employ National Health Service Corps personnel and operate a certified Rural Health Clinic. However, all federal programs must satisfy individual project guidelines to receive funding. Some of the similarities and differences among the four programs are identified in Table 1. In addition, Appendix B describes some of the federal program requirements for one of these programs, the Rural Health Initiative.

1.3 TRENDS

Federal primary care programs represent an interest at the governmental level to ameliorate, and eventually eliminate, primary health care delivery accessibility and availability barriers. To facilitate the rational development of govern-

	RHIs AND UHIs	PCRDs	NHSC	RURAL HEALTH CLINICS
LENGTH OF FUNDING (YEARS)	3+	GENERALLY 5	2 & 3	N/A
DELIVER PRIMARY CARE SERVICES	YES	NOT USUALLY	YES	YES
SHORTAGE AREA	MUA	N/A	HMSA	MUA
COORDINATE AND LINK EXISTING SERVICES	YES	NOT NECESSARILY	NO	NO
AUDIT REQUIRED	YES	UNKNOWN	UNKNOWN	UNKNOWN
COMMUNITY GOVERNING BOARD	YES	NO	YES	UNKNOWN
RESEARCH COMPONENT	NO	YES	NO	N/A

TABLE 1 - SELECTED CHARACTERISTICS
AND FEDERALLY MANDATED REQUIREMENTS OF
FIVE FEDERAL PRIMARY CARE PROGRAMS

mentally sponsored primary care programs, the Montana Health Systems Agency assumes a two fold responsibility. First, the MHSA processes recommendations regarding which areas of the state should be designated as Medically Underserved Areas or Health Manpower Shortage Areas. Both designations establish local eligibility for participation in primary care programs and application for federal funds. Secondly, the Health Systems Agency reviews grant applications and requests for funding under the Proposed Uses of Federal Funds (PUFF) review process.

2.0 CURRENT SITUATION

2.1 AVAILABILITY

There are four different designations used to determine if a community can participate in any of these programs. These are:

— Medically Underserved Areas (MUA)
— Health Manpower Shortage Areas (HMSA)
— High Infant Mortality Areas
— High Impact Migrant Areas

At the present time there are no designated High Impact Migrant Areas in Montana. Figure 1 shows the locales in Montana currently (March I, 1978) having one or more of the other three designations.

The Medically Underserved Area designation depends on four statistics: The physician to population ratio, the percentage of people below the poverty level, the percentage of elderly, and the five year infant mortality rate. Each of these statistics is converted to an index number and the four indices are added. If the sum is below a specified standard, the Medically Underserved Area designation can be made.

The Health Manpower Shortage Area designation is used by the National Health Service Corps to select communities for NHSC sites and to determine whether a provider is eligible to participate in the loan repayment program. This designation is primarily based upon the provider to population ratio. One exception in the regulations specifies that all Indian Reservations and Indian Tribes are automatically designated as Health Manpower Shortage Areas. Under an arrangement between the Bureau of Community Health Centers and the Bureau of Health Manpower, all Health Manpower Shortage Areas are automatically considered Medically Underserved Areas.

The High Infant Mortality designation is used with the other designations to prioritize communities for RHI,UHI and PCRD grants. The designation is applied to communities with a ratio of 2,000 live births to an infant mortality rate exceeding 22.1 per 1,000 live births over a five-year period. Communities with less than 2,000 births qualify if the infant mortality rate is statistically higher than 22.1 per 1,000 live births.

High Migrant Areas are also used in prioritizing communities for RHI, UHI and PCRD grants. To be eligible for this designation a community must experience an increase of over 4,000 migrant or seasonal farm workers each year. At this time there are no communities in Montana designated as High Migrant Impact Areas.

It is Health Systems Agency policy to respond to all requests for these designations only after the local county commissioners have been consulted. In the designation process, local professional societies, Indian groups, and other organizations which could be affected by the designation are also contacted and requested to provide their comments.

2.2 ACCESSIBILITY

Currently there are five federally funded primary care programs in Montana. Figure 2 shows the geographical areas served by these programs. It also shows the current location of NHSC physician sites. Although there are clinics staffed by non-physician personnel, none have been certified by the federal government as "rural health clinics."

The funding source and funding history for each of these programs are shown in Table 2. Three of the programs are funded as Rural Health Initiatives and two as PCRD projects. There are no Urban Health Initiatives (UHIs) currently funded

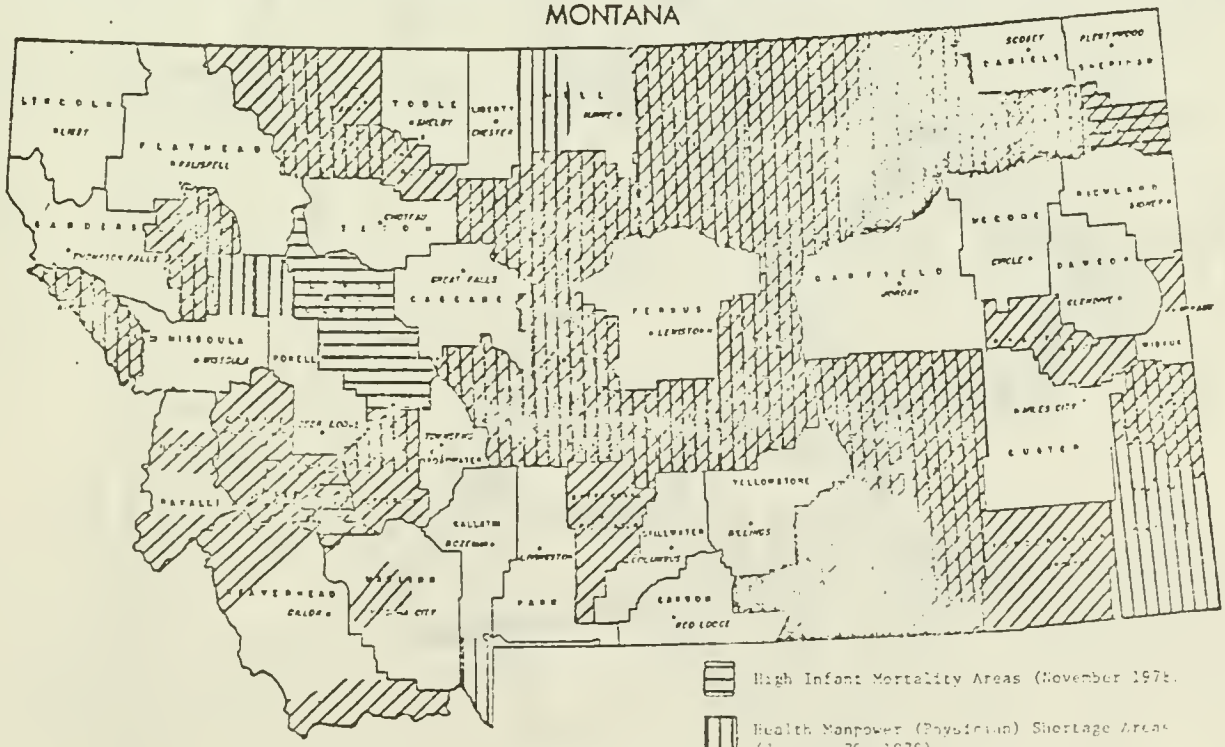

MONTANA
High Infant Mortality Areas (November 197
Health Manpower (Physician) Shortage Areas
(January 30, 1979)
Medically Underserved Areas (October 15,

Figure 1 - Areas in Montana designated as High Infant Mortality Areas, Health Manpower Shortage Areas and/or Medically Underserved Areas.

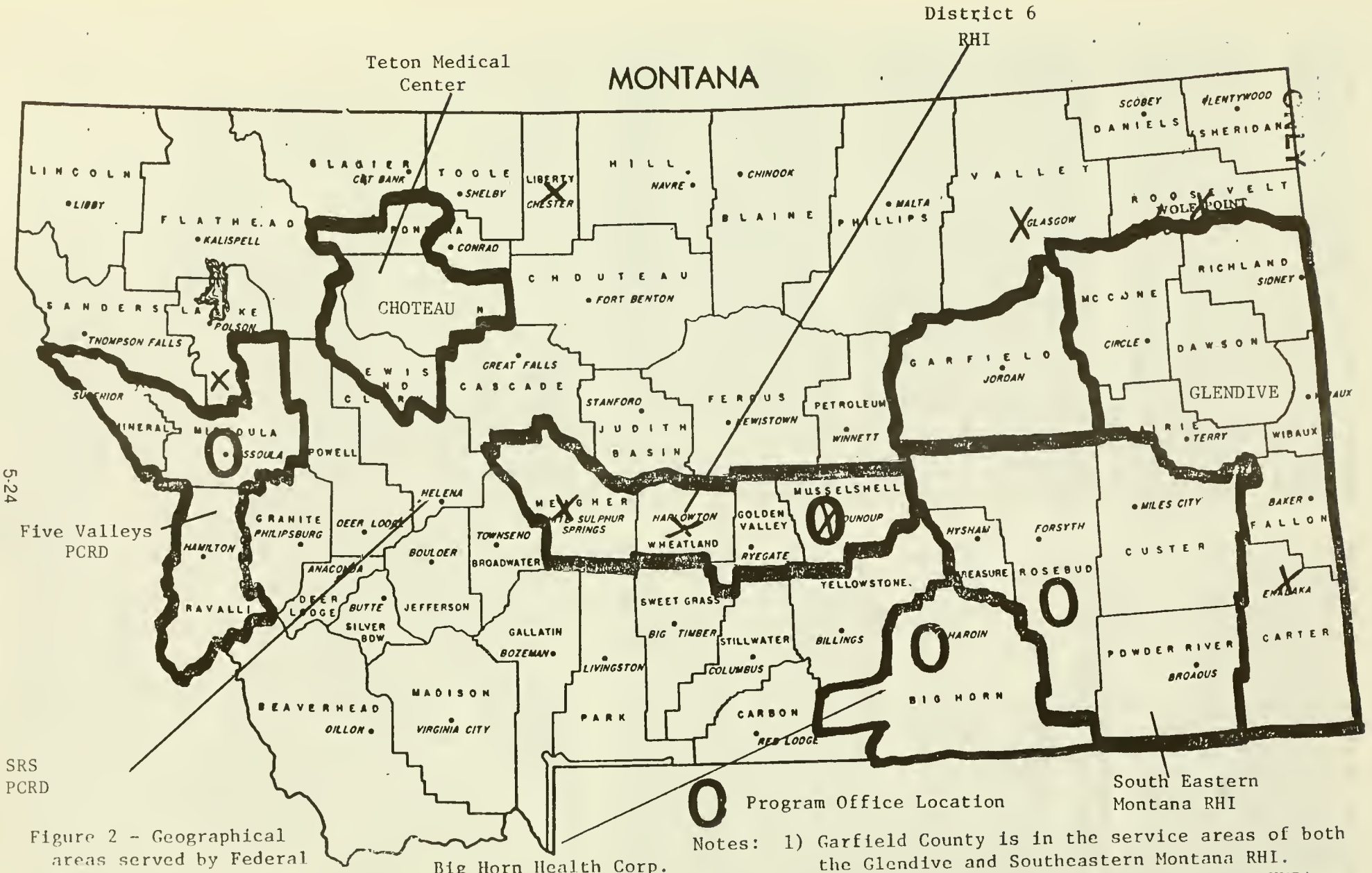


Figure 2 - Geographical areas served by Federal Primary Care Programs

Notes:
1) Garfield County is in the service areas of both the Glendive and Southeastern Montana RHI.
2) The service area of the Eastern Montana HHRA program which is being administered by the Social Rehabilitation Service is not shown. Its stated service area is all 17 Counties in Eastern Montana.

X - NHSC Physician Sites

Program	Date of Initial Funding	ESTIMATED FEDERAL FUNDING 1975	1976	1977	1978	1979
S.E. Montana RHI	7-1-76		246,380	339,097[1)]	264,299	152,588[1)]
District 6 RHI	6-1-77			25,000[1)]	159,830	-[2)]
Five Valleys PCRD	8-1-78			[1)]	25,000	167,000[1)]
SRS PCRD	8-1-78				250,422	395,329[1)]
Total Federal Funding		$325,113	$458,900	$901,961	$1,873,585	937,422+

1) Amount requested from PHS; not necessarily the amount awarded.
2) Not reviewed until December.

Table 2 - Estimated Federal Funding
Awarded to RHI and PCRD Progarams in Montana by Year

NOTE: Above figures do not necessarily reflect operating costs of the programs; other sources of federal funding, sources of private funding and monies received for services delivered are not included.

Sources: Unpublished computer printouts of PHS Funds awarded FY 1976 and FY 1978 and Individual grant applications.

Grantee	Type of Grant	NHSC Clinics	Satellite Clinics	Dental Programs	WIC Program	Family Planning	Health Education	School Health Program	Health Information Clearinghouse	Cancer Screening	Screening for Adults	Screening for Children	Nutrition	EMS	Vision Care	Immunization	Mental Health Programs	Screening Developmentally Disabled
Five Valleys PCRD	PCRD		X		X	X	X	X	X	X	X	X	X	X	X	X	X	
District VI RHI	RHI	X					X						X			X	X	
Southeastern Montana RHI	RHI	X	X	X	X	X								X	X	X	X	
SRS PCRD Project	PCRD											X						X
Big Horn Health Corp.	RHI	X		X	X	X	X		X	X	X	X	X		X	X	X	X

Table 3 - Services Currently Addressed
in selected Montana RHI/PCRD Programs

Source: Individual RHI/PCRD Grant Applications

in Montana. During fiscal year 1980 almost two million dollars in federal funds were used to support these programs.

Table 3 lists some of the services which are currently being furnished by the RHI/PCRD programs. It appears that most of the programs are attempting to provide some sort of dental program, nutritional assessment (through WIC), some family planning services, well-child care and immunization programs.

The Social and Rehabilitative Services (SRS) PCRD project is unlike the other programs presented in this section. It is designed to establish a 17-county network in Eastern Montana to screen and evaluate handicapped children. Although The Department of Social and Rehabilitative Services is sponsoring this project, several other state agencies, including the Department of Health and Environmental Sciences (Maternal and Child Health Bureau), the Department of Institutions, and the Office of Public Instruction, will be involved in implementing the program.

2.3 COST

One of the major problems in delivering primary care in many Montana communities is that they lack the population base to support a clinic facility. These towns generally have a population between 500 and 1,500 people and are located 20 or more miles from a medical facility.

Table 4 presents some theoretical estimates of the population base needed to economically support four different types of primary care staffing patterns. It also includes estimates of three major types of costs incurred in delivering primary care. Although many assumptions have been used in preparing these estimates, this table provides rough guidelines for estimating the money needed to run a small clinic.

Practice Type	Population Base Required for Breakeven [1]	Total Revenue Needed $[1] [2]	Salaries and Fringe Benefits	Overhead [2] [3]	Variable Costs [3] [4]
Nurse Practitioner	3,395	$ 83,027.	$ 28,600.	$ 27,080.	$ 19,044.
Solo Physician	2,361	138,426.	61,875.	76,551.	25,530.
Solo Physician and Nurse Practitioner	3,191	187,087.	90,475.	96,612.	34,500.
Two-Physician Group	4,010	259,961.	123,750.	136,211.	48,529.

1) Some professionals question the population base required; they indicate that Montana's experience is that a community of 1,500 - 2,000 can support a solo physician.

2) It is assumed that 10 percent of the billings are not collected (i.e., written off as bad debts).

3) Included in overhead are office space, support staff and their fringe benefits, furniture and equipment, upkeep on a professional car, and medical malpractice insurance.

4) Includes the office and laboratory supplies needed to treat patients.

Table 4 - Estimated Population Base and Costs Needed to Economically Support Different Types of Primary Care Practices

SOURCE: John Short & Associates, Inc., Economic Considerations in a Community's Ability to Support a Family Practitioner and a Dentist, prepared for the Montana Health Systems Agency, Nov. 7, 1978.

The estimates in Table 4 indicate the following conclusions:

1. Many Montana communities are too small to support a full-time clinic. In many areas it will probably be necessary to develop a consortium of primary care clinics.
2. The solo physician/nurse practitioner model appears to be the most efficient. Some studies estimate that a physician working with a nurse practitioner can increase clinic efficiency by as much as 40 percent.

In many cases, small communities cannot economically justify a full-time clinic operation. However, they may be adequately served by the establishment of a satellite clinic which is open two or three days a week. Theoretically, the satellite could be staffed by a single physician, a physician/nurse practitioner team or a nurse practitioner with nearby physician backup. Administrative services could be provided at a central location.

3.0 FUTURE RESOURCE REQUIREMENTS

3.1 AVAILABILITY

Future federally sponsored primary care initiatives located in Montana should emphasize one of two basic themes. These are:

- — To support and help maintain small, rural hospitals in their catchment areas, and
- — To assist in the development and operation of satellite primary care clinics in communities which can demonstrate support and need.

It is acknowledged that federal requirements for RHIs and PCRD projects mandate that many other services be rendered and local resources be coordinated. Nevertheless, if primary medical care is not provided, the entire delivery system is severely limited.

It is suggested that to support rural hospitals, RHIs and PCRD projects can be used as the focal point for local physician recruitment programs. They can, for example, be instrumental in recruiting and retaining NHSC physicians. The National Health Service Corps can be used independently or in conjunction with other federal programs to provide physician services.

To assist in developing rural clinics, RHI and PCRD projects can perform the following functions:

- — Recruit personnel through both private sources and National Health Service Corps.
- — Obtain grants for facility construction or renovation.
- — Provide adminstrative and/or support services necessary to operate a clinic.
- — Pursue Rural Health Clinic designations so that midlevel practitioners employed in the clinics can be reimbursed by Medicare and Medicaid.
- — Coordinate and contract to provide other services (such as WIC, Maternal and Child Health Services and family planning) which were not previously available in the area.

3.2 ACCESSIBILITY

The establishment of needed federal primary care programs in Montana reduces accessibility barriers for rural populations. Broad community support is emphasized for all governmentally sponsored programs.

3.3 COST

The reader is referred to Table 4 for the estimated population base and revenues needed to economically support four different models of primary health care delivery.

4.0 GENERAL ANALYSIS

4.1 ALTERNATIVES AND ISSUES

Appendix A contains a list of several small communities in Montana and indicates the medical services currently available. It is emphasized many Montana communities are being adequately served by private physicians. Some clinics have already been established and are operational (i.e., Sunburst, Drummond and Thompson Falls). The Indian Health Service operates permanent clinics on some of the reservations. The SOS Clinic in Seeley Lake is an enterprise initially funded by the Comprehensive Health "A" agency and the Missoula County Commissioners.

One problem area involves those communities having a small hospital. In most small communities, the local hospital is the cornerstone of the area's health care delivery system. Many operate a long-term facility in concert with the hospital. Some also own the local clinic in which the physician practices. However, Montana law requires that, without a local physician available, the hospital must close. Thus, the options for these communities are severely limited; if they want to keep their hospital, they must have physician coverage.

APPENDIX 1

RECOMMENDED REVIEW CRITERIA (RHIs and UHIs)

1. Each proposed project requesting federal funding must address and meet federal rules, regulations, goals, guidelines and program requirements for the program. A list of criteria to be addressed in an application for an RHI appears in Appendix B.
2. Each program should address strategies for becoming self-supporting after three years of funding. Viable and self-sufficient programs are desirable, but not of paramount importance. It must be recognized that in some Montana communities, programs of this nature will never become entirely self-sufficient.
3. Each program should emphasize the availability and accessibility of primary medical services by coordinating local physician recruitment and retention efforts, establishing networks of small clinics and satellite clinics and/or utilizing midlevel practitioners.
4. The area served by the project should develop linkages which correspond with the catchment areas for other related health services.
5. Each RHI project should be able to demonstrate broad community support from local elected officials, providers and consumers living in the communities they intend to serve. These people are also encouraged to attend local HSA review meetings and voice their support for or opposition to the proposed project.
6. Any federally sponsored primary care program which includes Indian populations in their catchment areas should coordinate their planning activities with local Indian health planners and the Indian Health Service.
7. For continuation grants, (that is, applications for the second and each successive year of federal funding), copies of the most recent detailed financial report must be submitted to the HSA with the application and made available at the HSA public review. If the annual audit is available, it should be made available at the public review.

RECOMMENDED REVIEW CRITERIA (PCRD)

1. PCRDs must address one or more of the areas specified in the enabling legislation.
2. Since PCRD projects are intended to be research and demonstration grants, the scope and depth of the project should be explicitly defined in the initial application. The scope of the project must remain consistent over the demonstration period.
3. The research design (how the applicant intends to show program impact) should be clearly explained.

4. The time period needed to conduct the research and/or demonstration should be specified in the initial application in terms of years.

5. The HSA recommends that each PCRD establish a local governing board or advisory board to oversee and coordinate the local program.

6. Each PCRD should have a financial audit conducted bi-annually. A detailed financial report must be submitted with the application for continued federal funding and made available at the HSA public review.

APPENDIX A

Primary Care Facilities
in Montana Communities
not having a hospital.
(May 1979)

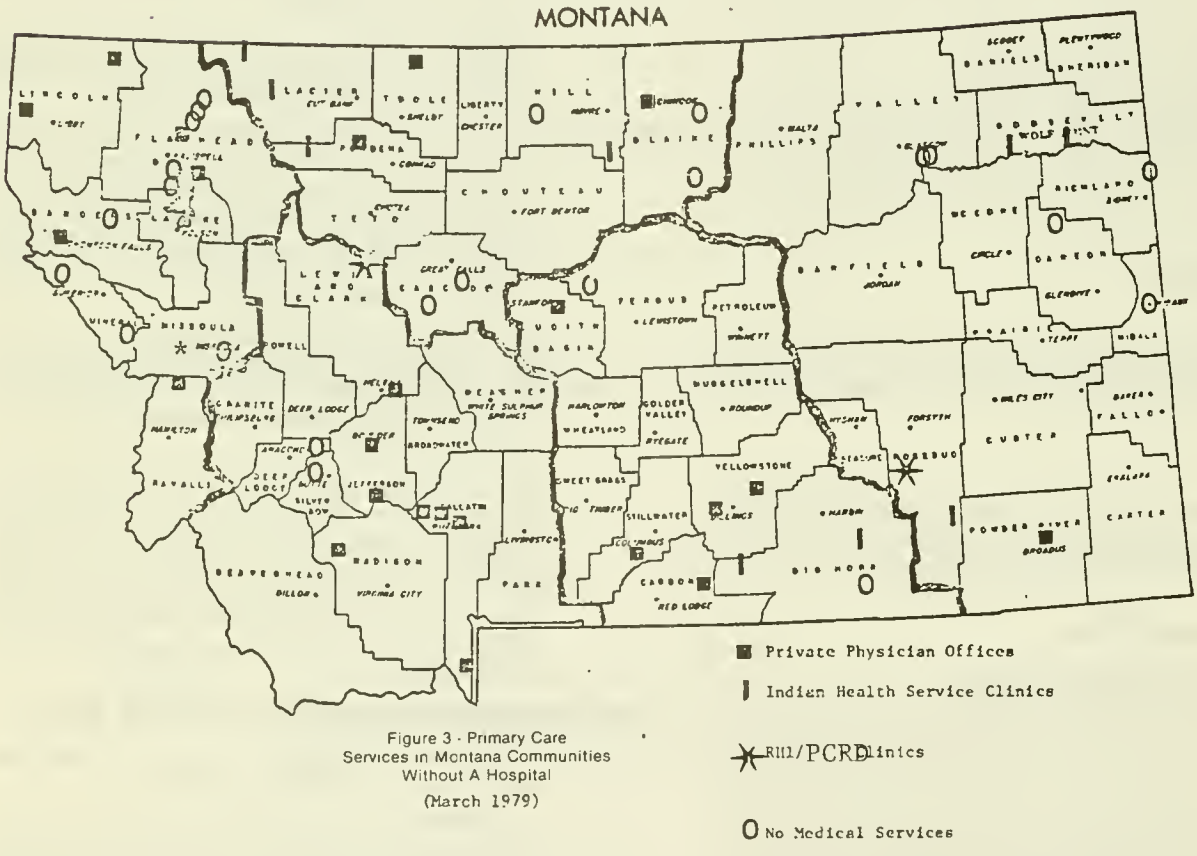


Figure 3 - Primary Care
Services in Montana Communities
Without A Hospital
(March 1979)

NORTHWESTERN

County	Community	Population Estimates 1970	Population Estimates 1980	MD's	Clinic Sponsor: Private	Indian Health Service	NHSC	Other
Lincoln	Eureka	1,195	1,502	2	X			
	Troy	1,046	788	2	X			
Flathead	Coram	500	-					
	Hungry Horse	700	-					
	Martin City	500	-					
	Columbia Falls	2,652	3,517	7	X			
	Lakeside	600	-	1				
	Somers	889	-	1				
	Big Fork	500	-	3	X			
Sanders	Hot Springs	664	847		X			
	Thompson Falls	1,356	1,366	X	X			
Lake								
Mineral	Alberton	363	465					
	St. Regis	475	-					
Ravalli	Darby	538	566				Prop[1]	
	Stevensville	829	1,024	1	X			
Missoula	Clinton	995	-					
	Lolo	1,500	-					
	Seeley Lake	800	-	1[2]				X[3]

1) Proposed by the Five Valleys PCRD.

2) Semi-retired physician in Condon provides limited emergency care.

3) The SOS Clinic in Seeley Lake is staffed by a nurse and is now community funded.

TABLE 1 - Primary Care Facilities
In Northwestern Montana Communities
Not Having A Hospital

Source: Informal Survey by HSA Staff, May 1979

NORTH CENTRAL

County	Community	Population Estimates 1970	Population Estimates 1985	Clinic Sponsor: MD's	Private	Indian Health Service	RHI/ PCRD	Other
Glacier	Browning	1,700	2,253			X		
	Babb	52	-			X		
	Heart Butte	25	-			X		
Toole	Sunburst	604	524		X			
Pondera	Valier	651	678		X			
Chouteau								
Cascade	Belt	656	731				Prop	1)
	Cascade	714	748					
	Stockett	500						
Liberty								
Blaine	Chinook		1,813	1	X			
	Harlem		1,094	2				
	Hays		500					
Hill	Box Elder	120	-			X		
	Rudyard	600	-					

1) Proposed in a community grant to the Economic Development Agency (EDA).

TABLE 2 - Primary Care Facilities
In North Central Montana Communities
Not Having A Hospital

Source: Informal Survey by HSA Staff, May 1979

SOUTHWESTERN

County	Community	Population Estimates 1970	Population Estimates 1985	Clinic Sponsor: MD's	Private	Indian Health Service	RHI/ Proposed
Beaverhead							
Madison	Twin Bridges	613	564	1	X		
Gallatin	Belgrade	1,307	1,823	1	X		
	Manhattan	816	1,043	1	X		
	Three Forks	1,188	1,561	1	X		
	West Yellowstone	756	941	1	X		
Jefferson	Boulder	1,342	1,744	4	X		
	Whitehall	1,035	1,436	2	X		
Lewis & Clark	East Helena	1,651	2,327	1	X		
	Augusta	536	-	-			X
			-				
Broadwater							
Meagher							
Powell							
Deer Lodge	Warm Springs	500	-				
	Opportunity	650	-				
Silver Bow							
Park							

TABLE 3 - Primary Care Facilities
In Southwestern Montana Communities
Not Having A Hospital

Source: Informal Survey by HSA Staff, May 1979

SOUTH CENTRAL

County	Community	Population Estimates 1970	Population Estimates 1985	MD's	Clinic Sponsor: Private	Clinic Sponsor: Indian Health Service	Clinic Sponsor: RHI/ HCRA	Clinic Sponsor: Other
Fergus	Denton	398	424					
Judith Basin	Stanford	505	527	1	X			
Petroleum								
Wheatland								
Golden Valley								
Musselshell								
Stillwater	Absarokee	600	-	1	X			
Sweet Grass								
Carbon	Bridger	717	1,080	1	X			
Big Horn	Crow Agency	1,000	-	4		X[1]		
	Pryor	50	-			X		
	Lodge Grass	806	816					
Yellowstone	Laurel	4,454	8,370	2	X			
	Worden	425	-	1	X			

1) Operated in conjunction with an IHS Hospital.

TABLE 4 - Primary Care Facilities
In South Central Montana Communities
Not Having A Hospital

Source: Informal Survey by HSA Staff, May 1979

EASTERN

County	Community	Population Estimates 1970	Population Estimates 1985	MD's	Clinic Sponsor: Private	Clinic Sponsor: Indian Health Service	Clinic Sponsor: RHI/ HCRA	Clinic Sponsor: Other
Valley	Nashua	513	760					
	Fort Peck	1,200	-					
Daniels								
Sheridan								
Roosevelt	Wolf Point	3,095	3,334			X		
	Poplar	1,369	1,853			X		
Garfield								
Richland	Fairview	956	1,131		-[1]			
Dawson	Richey	389	439				-[1]	
Rosebud	Colstrip	200	2,500				X	
	Ashland		531					
Fallon								
Carter								
Custer								
Powder River	Broadus	799	863	1	X			
Prairie								
McCone								
Wibaux	Wibaux	644	684	1				
Phillips								

1) Clinic no longer open.

TABLE 5 - Primary Care Facilities
In Eastern Montana Communities
Not Having A Hospital

Source: Informal Survey by HSA Staff, May 1979

APPENDIX B
FEDERAL PROJECT REQUIREMENTS FOR RHIs

1. Applicant Entity
Applicant must be a public or nonprofit private entity involved in or providing health care services in a Medically Underserved Area or Health Manpower Shortage Area.

Approvable projects providing services to areas meeting the greatest number of these need indicators will have the highest priority for support. Generally, existing health care delivery resources will be utilized, to be augmented by additional personnel and management systems, as needed, in developing rural health care systems.

2. Demographic Data
Applicant entity should provide the demographic data necessary to determine the appropriate designation or designations of the service area.
A map of the proposed service area must be provided by applicant.

3. Health Care Services to be Delivered
Primary health care services to be available and accessible: 24-hour coverage, ambulatory care for diagnosis and treatment of uncomplicated illnesses and diseases, preventive services, case finding services, minor surgery, emergency care for situations not requiring specialized personnel and equipment, preventive dentistry, and early periodic screening, diagnosis and treatment.

Appropriate supplemental health services necessary for the adequate support of primary health care services, such as mental health, alcohol abuse and alcoholism, drug abuse, transportation, and outreach (either directly or through referrals).

Environmental Health services, as appropriate.

Health Education activities as appropriate and feasible.

—Projects funded under Section 330 (Community Health Centers Program) *must* provide mandated primary health care services. Projects funded under Section 330 *must* meet any other mandated management and/or operational requirements, such as ongoing quality assurance, bilingual staff (if appropriate), transportation, health education in the use and availability of health care services, etc.

4. Coordination of Activities
Applicant must coordinate its efforts and services with those of other federal, state and local agencies and programs, private groups, and private sector practicing physicians — both solo and group practices. Such efforts should take the form of either formal written agreements or verbal arrangements. These relationships can be either for referrals to specific programs, centers or offices, or for arrangements to have component area of such programs or services physically located within the proposed projects. Such efforts may also be an arrangement for periodic consultations or delivery of services at the project or at some other local setting (such as a school, a county health department clinic, etc.).

Applicants are expected to coordinate or link activities with the following:

- Maternal and Child Health Programs
- Crippled Children's Programs
- Community Mental Health Centers
- Alcohol Abuse and Alcoholism Programs
- Family Planning Programs
- Cancer Screening Programs of the National Cancer Institute
- Drug Abuse Programs
- Early Periodic Screening, Diagnosis and Treatment Programs
- Emergency Medical Services Programs
- Area Health Education Centers
- Home Health Programs
- Family Medicine Residency programs
- Hemophelia Comprehensive Diagnostic and Treatment Centers
- Sickle Cell Screening and Education Clinics
- Other health delivery or health care oriented programs of Federal Agencies other than the Public Health Service
- State and Local Health Departments
- Local schools
- Voluntary health agencies (heart, cancer, lung, etc.)
- Farmers Home Administration and Food and Nutrition Services of the Department of Agriculture
- State Cooperative Extension Services
- Local Labor Union groups
- Local industry

All applicants are expected to establish linkages with the following:

- Providers of secondary care (including hospitals)
- Providers of tertiary care
- Long-term care providers/facilities

5. Time-Phased Health Systems Development Plan
All applicants are expected to provide a time-phased plan for the development of a health system which meets the general criteria and the specific requirements for funding under particular sections of the Public Health Service Act and the Social Security Act.

6. Financing and Reimbursement
In the development of projects, costs that may be covered from various grant sources are:

1. Operating costs in excess of income generated from patient fees, third-party reimbursements and other sources. That is, grant funds may be used to subsidize operating costs initially where it is expected that:
   (i) Operating expenses will exceed revenues generated due to less than full utilization of the project;
   (ii) Operating expenses will exceed revenues generated due to fee reductions to the poor and near-poor under an approved system.
2. Alternation, renovation, remodeling, or modernization of facilities and installation of equipment (but not to the extent of being the major use of grant funds).

Projects requesting support must provide a three-year financial plan, including a capital and operating budget, which sets forth in detail the projected revenues from all sources.

7. Other Characteristics

Projects funded under this Rural Health Initiative must also have other elements built into their planning. These elements include, but are not limited to:

- Patient record confidentiality
- Ongoing quality assurance
- Quality medical records
- Health education programming
- Effective management/control systems and procedures
- Evidence of community support, such as financial, in-kind services, donated labor and materials, etc.

8. Governing Boards/Consumer Representation

Projects must have a legally constituted and empowered governing board with appropriate user representation. It should insure broad representation of the geographic, racial and socioeconomic composition of the community.

A Rural Health Initiative project which has Section 330 funding must have at least nine members but not more than 25 members, except that this requirement may be waived by the Secretary of DHHS for good cause shown. The majority of the board members will be persons who are or will be served by the project and who, as a group, represent the individuals being served, and no more than one-half of the remaining board members may be persons who derive more than ten percent of their annual income from the health care industry. Employees of the project and their immediate families may not be board members, although project directors may serve as ex officio, non-voting members.

5.4

HOSPICE CARE PROGRAMS

GOAL:

Hospice care services in Montana should be available to persons with life-threatening diseases and their families and provide for the spiritual, physical, psychological and social needs to help them maintain the fullest and best possible quality of life.

OBJECTIVES:

1. By 1983, the Montana Health Systems Agency, in conjunction with the Montana Hospice Exchange Council, should design and conduct a study to determine the impact of hospice programs in Montana on the existing health care delivery system. This study should address:
   a. relationship of cost to and analysis of the hospice models in use
   b. public acceptance and patient acceptance
   c. utilization of service and delivery settings
   d. financial and reimbursement issues
2. The MHSA is to endorse the efforts of the Montana Hospice Exchange Council and maintain liaison with the Council.

LONG RANGE ACTIONS:

1. By 1982, a data collection methodology should be developed and the participation of all hospice programs solicited to collect the data.
2. By 1982, public education programs should be developed and utilized to promote greater provider and consumer awareness and support for all the hospice services currently offered.
3. By 1982 the Hospice Exchange Council should adopt and endorse program specific standards for volunteer qualifications, training, and monitoring. Program specific standards should ensure individual program flexibility while maintaining overall system quality of care.

1.0 BACKGROUND

1.1 SERVICE DEFINITION

The hospice concept in the United States today is generally defined to be a program providing palliative care, or that care designed to provide medical relief from pain, and supportive services to terminally ill persons and their families. Hospice services should be offered on a volunteer basis only at the patient's request.

In Montana, hospice care programs may best by defined as coordinated programs of home and in-patient health care which treat the terminally ill patient and family as a unit, employing an interdisciplinary team of professionals and volunteers to provide palliative and support care to meet the special needs arising out of the physical, psychological, spiritual, social and economic stresses which are experienced during the final stages of illness, dying and bereavement.

1.2 SERVICES AND SETTINGS

Hospice Care Services

Services to the hospice patient and family may be identified as three components; medical management, support services, and educational services.

One aspect of hospice care is to alleviate pain for the terminally ill patient. Therefore, care is directed toward making the patient as comfortable as possible through palliative modalities. Curative treatments are provided insofar as they provide patient comfort and prevent secondary illnesses. Although surgery and radiation are occasionally used as a method for controlling pain, the general practice of these two techniques is not accepted by all hospice programs as an integral component of the pain control program.

Support services are offered to the terminally ill patient and family to cope with the numerous stresses and adjustments arising from the impending death. Under the hospice concept, the familial unit may consist of any individual affected by or essential to the care program. Support services include, but are not limited to,

- — bereavement, services provided to the family after the patient is deceased.
- — respite care, care provided to the patient to afford the family a period of rest.
- — counseling and emotional support, provided to all affected by the impending death.
- — spiritual services, intended to aid the patient and affected individuals cope with death.
- — housekeeping services, the availability of this support may be a determining factor as to whether the patient can continue to reside at home, as opposed to care rendered in an inpatient unit.
- — transportation, patients may be maintained at home if transport is provided or arranged to the physician or outpatient visits necessary.
- — information and referral services, surviving members may require financial or legal assistance in making funeral arrangements, or the patient may need assistance in preparing a will.

The third component of hospice care, educational services, serves three primary functions: 1) education of patient, family, and all involved, including the patient care team and ancillary personnel, on the process of death and dying, 2) education of the family as to the techniques of care for the patient at home, and 3) public education as to death and dying attitudes.

Hospice Service Delivery Settings

Although hospice care usually involves the provision of services from a continuum of health care providers, two service delivery settings are evident, inpatient and home care. Briefly outlined, the service settings are described as follow:

1. *Hospital based*
   a. Acute care hospital with centralized palliative care or hospice unit with the staff and beds designated for the provision of hospice care.
   b. Acute care hospital hospice "consultant" program: Specially designated interdisciplinary hospice team or existing staff of social workers,

psychologists and others provide services to hospice patients dispersed throughout the general hospital.

c. Hospital-based home care programs: The hospice team may be separate from the home care staff or may be members of the home care staff with special training in hospice care techniques.

2. *Hospital-Affiliated Free-standing*
A separate facility with all beds and staff assigned to providing care to the dying patients. The facility is located adjacent to the hospital or in the community but is owned by the hospital.

3. *(Independent) Free-standing*
A separate facility with all beds and staff assigned to providing care to the dying patient. It is an independent economic entity governed by its own administrative staff and board.

4. *Home Care*
A program which provides and coordinates hospice services in the home, but does not own or operate an inpatient facility. The program is administratively and economically autonomous. Hospice team members are available for services in the home 24 hours a day, seven days per week.

5. *Extended Care Facility or Nursing Home*
A nursing home or extended care facility program which has converted beds or established a separate unit for the provision of hospice care. Staff is trainec in the provision of hospice care. The facility is governed by its own board and administrative staff.

1.3 TRENDS

Hospice care is a relatively new phenomenon in the United States, although the concept of hospice care was used to refer to sanctuaries for travelers in the first century A.D. The impetus for the growth of hospice care in the United States originated from the development of a hospice program in England, 1967.

Seven years after the development of the hospice in England, the first hospice in the United States began operation in Connecticut. Presently, there are approximately 500 programs nationally providing some form of specialized service for the terminally ill.[1]

2.0 CURRENT SITUATION

2.1 AVAILABILITY

In Montana, eight hospice programs are either in the developmental or early operational stages of service delivery. The hospice programs are presented in Table 1.

One hospice program has received a federal grant to demonstrate that by the coordination of existing health services, complemented by the addition of a volunteer component, the needs of the terminally ill can be met without the creation of another health care system. The grantee, Big Sky Hospice of Billings, received funding under a Health Underserved Research and Demonstration Project. The intent of these earmarked funds is to promote innovative approaches for the delivery and financing of health care services in medically underserved areas.

The Big Sky Hospice Demonstration Project is the only hospice program in Montana reviewed by the MHSA. The review authority was mandated under the Proposed Uses of Federal Funds (PUFF). Hospice programs are not addressed under Montana's Certificate of Need Law, therefore, no licensing regulations exist.

2.2 ACCESSIBILITY

Figure 1 depicts the hospice programs and the anticipated service areas for each respective program. Using the service area boundaries and the population residing within, 59.5 percent of Montana's 1980 population have access to hospice services.

2.3 COST

Because hospice programs are relatively new to the health care delivery system, the impact of these programs on overall systems costs is not available. To those involved in the developmental stages of the hospice movement, it is believed hospice care offers a substitute for and will cost no more than traditional care for the dying. Empirical data nationally demonstrates the following:

- — A contract issued by a private health association reimbursed a new hospice unit in a Washington home for $130 — -$140 day.
- — A Rochester, N.Y., Blue Cross study last year found average home care at $87.75 a day against a daily hospital rate of $200.
- — One hospice reported the average cost for all home services per patient (excluding institutionalization) at $750 to $1,000 for three months — including 15 to 20 visits at $29 per visit.
- — A May 1978 study in New York by the Genessee Region Home Care Association covering 23 discharged cancer patients indicated they spent an average of 39 days within the program at a daily cost of $26.19.

Inpatient hospice care is found to be less expensive than acute care in a hospital but more expensive than nursing home care.[2]

3.0 FUTURE RESOURCE REQUIREMENTS

In a memorandum of April 9, 1980 from the State Department of Health and Environmental Sciences, it is the Department's decision "that the addition of hospice service to a hospital, home health agency, or other health care facility is not reviewable under our present Certificate of Need law." Therefore, the MHSA will only have review authority for those hospice programs requesting federal assistance. To date, only demonstration oriented funds have been available federally for hospice programs.

In one of the more comprehensive studies done on hospice care by the National Hospice Organization (NHO), a minimum of effort was devoted to regional planning issues and activities.[3] Only 5 of 22 hospices surveyed had any interaction with HSA's, of which none of the five reported receiving any guidance or information with respect to starting their programs.[4] The NHO report concludes:[5]

> "In summary, this current state of the art planning for hospice care services is limited due to a lack of sufficient data on hospice service needed for planning and consequently to the absence of well-formulated hospice planning guidelines."

Other hospice and health planning literature reviewed either did not mention the HSA's role in hospice planning, or relayed the isolated experience of one or two hospice programs with their HSA's.[6]

3.1 AVAILABILITY

Generally, the majority of patients admitted to a hospice program are afflicted with cancer. Others admitted to hospice programs are victims of terminal kidney failure, pneumonia, or heart, chronic pulmonary or debilitating muscular disease. Patients usually have a limited life expectancy of six months or less. A Federal government survey of

HOSPICE	ADMINISTRATIVE OFFICE	SERVICE DELIVERY MODE	SERVICE AREA	CLIENT CASELOAD 1980	ESTIMATED BUDGET	FUNDING SOURCE
Northwestern						
Hospice of Missoula	Missoula	Autonomous	Missoula Co.	20[1]		donations, memorials business contributions.
St. Joseph's Mission Mountain Hospice	Polson	St. Joseph Hosp.				
Flathead Hospice Project	Kalispell	Autonomous	Flathead Co.			memorials, donations, Membership Fees
North Central						
Columbus Hospice	Great Falls	Columbus Hospital	Great Falls Black Eagle	10[2]		Columbus Hosp.
Southwestern						
Highlands Hospice Inc.	Butte	Autonomous[3]	Jefferson (Whitehall) Beaverhead (Dillon) Deer Lodge (Anaconda) Silver Bow	16		memorials, United Way, donations
Hospice of Helena	Helena	West-Mont Home Health Care	Jefferson, Meagher Lewis & Clark, Broadwater	40		Home Health Care reimbursement sources, donations, memorials
South Central						
Big Sky Hospice[4]	Billings	Coalition of existing services	Yellowatone Golden Valley Musselshell, Stillwater Carbon, Big Horn Co.	151	128,111[4]	federal grant award, in-kind dollars
Eastern						
Hospice of Miles City	Miles City	Holy Rosary Hospital	Miles City			

TABLE 1
Hospice Programs in Montana

[1] 4 month reporting period, Sept.-Dec., 1980
[2] 3 month reporting period, Oct.- Dec., 1980
[3] operating as an autonomous entity but administratively located in St. James Hosp.
[4] $111,011 funded through the Dept. of Health and Human Services.

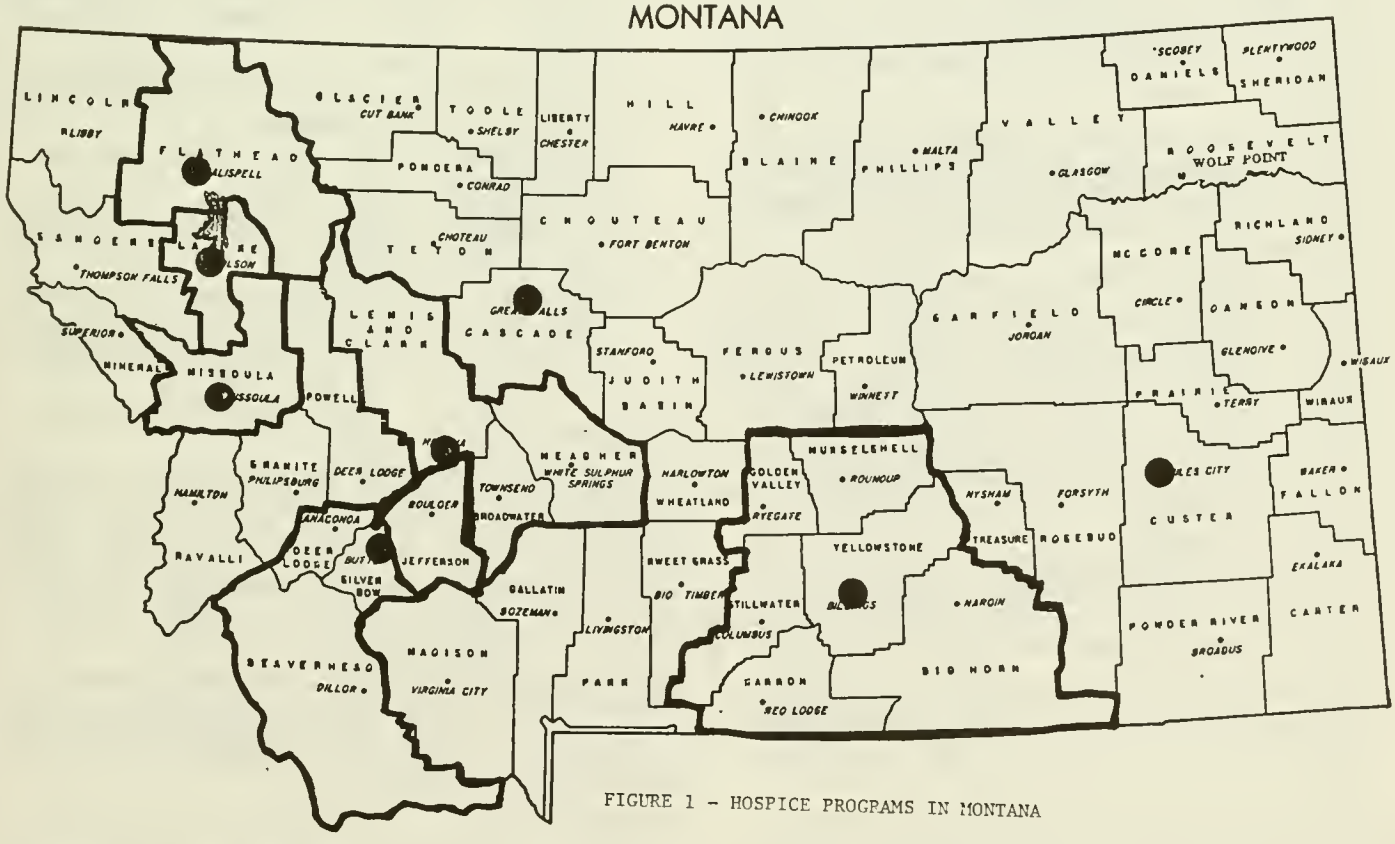


FIGURE 1 - HOSPICE PROGRAMS IN MONTANA

13 hospices including home health and inpatient care, demonstrated length of stays ranging from 31.9 to 105 days.

One method for estimating the potential need for hospice services is demonstrated by the following:

.5X (1977) + .1Y (1977) = potential caseload for hospice services where

.5X represents 50 percent of the cancer deaths reported in 1977. This does not take into account referrals to hospice programs for bereavement services only, and

.1Y represents 10 percent of the reported deaths due to heart disease, cerebrovascular disease, and arteriosclerosis. These three chronic afflictions are reported on a county basis to the Department of Health and Environmental Sciences.

Aggregating the reported deaths due to cancer, heart disease, cerebrovascular disease, and arteriosclerosis by MHSA subarea, the following patient caseloads may be anticipated:

North Central	204	Southwestern	225
Northwestern	202	Eastern	127
South Central	225		

Other factors affecting the potential demand for hospice services, as well as the ability for the hospice program to deliver care are:

1. Proportional growth of the elderly population 65 years of age or older. In Montana, this population cohort is expected to increase by 7 percent by 1985, totaling 86,645.
2. The presence of occupational groups exposed to unusually high risks of cancer or other terminal diseases. The Preventive Health Services Bureau of the State Department of Health and Environmental Sciences has initiated a tumor registry with 46 hospitals in Montana participating. Data on cancer patients will be collected for a two-year period and an analysis of cancer incidence patterns will be conducted.
3. The degree to which medical malpractice insurance requirements may inhibit the use of volunteer hospice workers. Hospice of Missoula and Highlands Hospice in Butte have arranged for liability insurance for their volunteers.
4. The availability of institutions and organizations interested in sponsoring or supporting hospice care programs in Montana. Many of the hospice programs in Montana are administratively operated through a parent hospital or home health care agency, and all have solicited the support of many health care providers.
5. Numbers of single-person households (or other proxy for adults without family or friends who could provide continuous care and companionship in the event of terminal illness).
6. Population density, transportation, and climate considerations (This factor relates to the need for nurses, physicians, and others to visit patients frequently at home, and need for staff and family to travel daily to and from an inpatient unit).
7. The availability of home health care services (Figure 2).
8. The availability of volunteers with pertinent skills, including physicians, nurses, clergy, homemakers, social workers, and others with counseling skills.

The effective hospice program is one which has established linkages with the necessary resources available in the community, productive working relationships with providers of care and sufficient community support to elicit a corps of volunteer workers. The hospice concept of care requires that hospice services act to fill a void in the existing service delivery system.

Due to the relatively low patient caseloads expected in rural counties, it appears that these areas may best be served through hospice outreach programs utilizing a centralized administrative office.

3.2 ACCESSIBILITY

Accessibility to hospice services is a function of the geographical accessibility to hospice programs, patient's financial status (reimbursement) to receive the services and conversely, the programs ability to remain financially viable, the patient's eligibility to receive hospice services, local physician awareness and endorsement of hospice services, and community participation.

Geographically, hospice services are available to only a limited patient population in Montana. The success of these programs cannot be assessed at this time due to the lack of empirical data on program cost, patient satisfaction, and utilization review standards. The development of additional hospice programs may be at this time premature pending an assessment of the existing programs and the problems encountered in delivering hospice care.

Reimbursement and funding issues are addressed under section 4.0 of the plan component. Many of the services rendered by hospice programs are nonmedical, such as bereavement services, the services performed by volunteers, counseling, private duty nursing, and social services, consequently, reimbursement presents a problem for hospice programs.

Admission criteria differ from program to program, and usually include, but are not limited to the following:

1. *Nature of disease* — Admission is occassionally restricted to cancer patients. Even where admissions are not so restricted, most admissions are cancer patients.
2. *Life expectancy* — Patients must have a life expectancy of weeks or months; sometimes a specific period (e.g., 3-12 months) is indicated.
3. *Geographic limitations* — Sometimes residence in a particular county is required.
4. *Involvement of a personal physician* — Some programs require that the patient's own physician continue to direct the care.
5. *Involvement of a responsible relative or friend* — Most hospices require that a specific person serve as the primary contact and assume ongoing responsibility for care in the home.
6. *Age restrictions* — Some programs may exclude patients by age of patient.

Hospice care is generally planned and offered by a medically supervised interdisciplinary team. The personnel involved usually include the physician or medical director, nurses (Registered Nurse, Licensed Practical Nurses, nurses' aides) occupational and physical therapists, social workers, home health aides, pharmacist, dietician, clergy, administrative personnel and volunteers.

Provider support is essential to successfully implement a hospice program in that national statistics indicate physicians refer 66 percent of the client population, friends refer 10 percent, nurses 9 percent, social workers 8 percent, and other sources 7 percent.

3.3 COST

Five hospice models and the characteristics distinguishing each are depicted below:

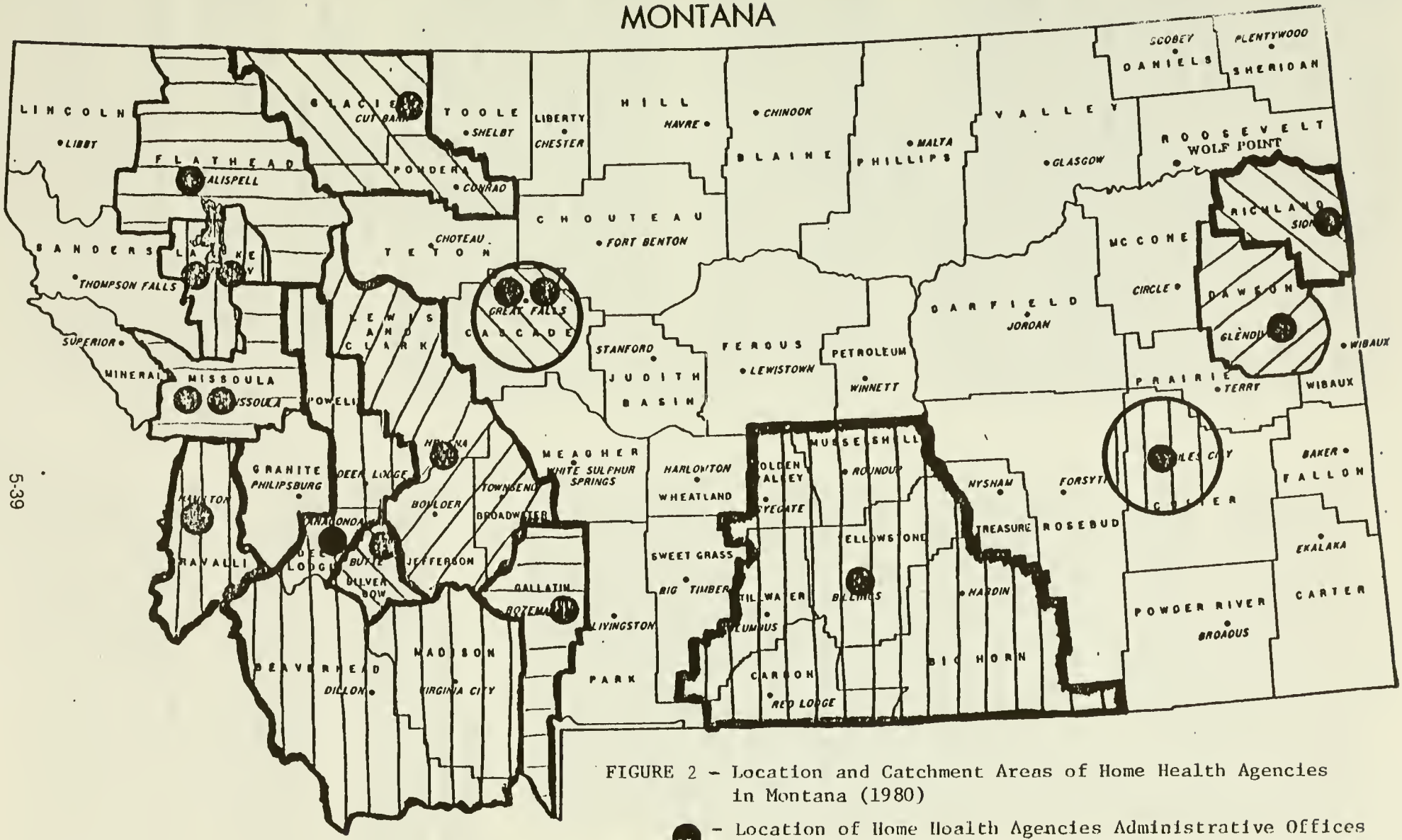


FIGURE 2 - Location and Catchment Areas of Home Health Agencies in Montana (1980)

● - Location of Home Health Agencies Administrative Offices (the shaded area indicates the area served)

NOTE:

1) Missoula City-County HHA serves a 20 mile radius of Missoula and the Seeley Lake area.
2) St. Joseph HHA (Polson) also serves the Hot Springs area of Sanders County.
3) The Blackfeet HHA is not yet operational in its entire catchment area.
4) Certificate of Need issued for Dawson County HHA May 1, 1980.

Model	*Characteristics*
Freestanding Autonomous Unit	Multidisciplinary team providing care 24 hours per day; flexible visiting rules; home-like environment; usually combined with home care program; substantial contruction or renovation costs; high percentage of paid staff; admissions usually limited to days or weeks immediately preceding death; third party reimbursement may be more difficult than in other models.
Freestanding Facility With a Hospital Affiliation	Same as a freestanding autonomous unit except that the hospital affiliation may preserve for the program the tax and reimbursement advantages of the parent institution.
Special Unit Within a Hospital	Multidisciplinary team providing care 24 hours per day; flexible visiting rules, which may be constrained somewhat by normal hospital routines; usually combined with a home care program; may involve substantial renovation costs; high percentage of paid staff; admissions may come largely through referrals from acute care wards of the hospital; third-party reimbursements available through the hospital.
Hospice Team Within a Hospital	Multidisciplinary team providing care to patients distributed throughout hospital; little or no renovation cost; hospital atmosphere; visiting hours may be somewhat constrained; high percentage of paid staff third-party reimbursement through normal hospital channels; probably no additional CON or license are required.
Home Care Only	Multidisciplinary team members visiting periodically and responding to calls for assistance; high percentage of volunteer staff; services may be offered through or in cooperation with existing community agencies (e.g., home health agencies); third party reimbursement is dependent on type of service and type of provider; may affiliate formally or informally with a hospital to provide backup beds initially and may develop own inpatient component eventually.

4.0 GENERAL ANALYSIS

4.1 ALTERNATIVES AND ISSUES

To date, utilization review criteria for hospice care services have not been developed due to the unique expected outcome of hospice care, death, and by the absence of information on the appropriate level, quantity, and mix of hospice care services.

Standards have been developed for hospice care programs by the National Hospice Organization (NHO), but have not been formally adopted by the Montana Hospice Exchange Council. The Montana Hospice Exchange Council is a recently organized coalition of individuals involved in hospice care delivery in Montana.

A national survey of hospice programs identified several significant issues hindering the delivery of hospice care:

1. *Staff exhaustion* — Several programs expressed concern about staff "burnout". Solutions have been sought by hospital-based programs through exceptions to the routine personnel policies (e.g., extended leave time, extra rotations). In addition, psychiatric counseling has been used in some programs to prepare staff for possible burnout and to help them accept it without guilt. One Midwestern director believes that staff should be limited to 24-30 hours per week of patient and family contact.
2. *Reimbursement* — Medicare and Medicaid do not recognize hospice oriented care as a provider category for reimbursement. Reimbursement for hospice services per se does not exist; in order to receive payment, a hospice program must be licensed as, or operate within, a certified home health agency, acute hospital, or skilled nursing facility. Reimbursement, therefore, is based on allowable costs within that particular licensure category. A hospice program within a home health agency can only bill for those services which have been approved by Medicare; this excludes such services as psychological counseling and bereavement follow-up, or homemaker assistance. Interdisciplinary team meetings are also not reimbursed, and are absorbed as an administrative cost.
3. *Late referral of patients to hospice care programs* — Early referral is essential if both the patient and family are to benefit from hospice care. Late referral does not allow patients and their family the opportunity to work through the stages of the grieving process with the help of professionals.

REFERENCES

1. National Hospice Organization, Delivery and Payment of Hospice Services: Investigative Study, Final Report, September, 1979, 301 Tower Suite 506, 301 Maple Avenue West, Vienna, VA 22180, p. 1.
2. The Hospice, Dying with Dignity, Part IV, Sylvia Porter.
3. pp. 37-49 on "Planning" in National Hospice Organization (NHO) *Delivery and Payment of Hospice Services: Investigative Study, Final Report,* Sept., 1979 (NHO, Vienna, Virginia, 1979)
4. *Ibid,* p. 44.
5. *Ibid,* p. 42.
6. The literature listed in the Comprehensive Bibliography does not often address regional planning for hospice care. The following do specifically, but not in terms of an overview of how HSAs across the country are dealing with hospice development.

   See: pp. 145-147 in Theodore H. Koff, *Hospice A Caring Community* (Winthrop Publishers, Inc; Cambridge, Mass. 1980); The NHO report cited above; Roberta Rakove, "Hospice Care A Planning Perspective" Qual—ity Review Bulletin Vol. 5 (5), May 1979: pp. 10-12; and ELM Services, Inc., "Criteria and Standards For Approval For a Hospice Program of Care" (Prepared under contract by ELM Services. Inc., Bethesda, Maryland: Sept. 1978).

APPENDIX 1

RECOMMENDED REVIEW CRITERIA: HOSPICE CARE PROGRAMS

Presently, the review of hospice programs in Montana is not authorized under Certificate of Need legislation. Only programs requesting federal funding, if available, may be subject to review under the Proposed Uses of Federal Funds or A-95 review and comment.

The following recommended review criteria therefore will, in all probability, serve as optional guidelines for the development of hospice programs in Montana.

1. Hospice programs should ensure continuity of care delivered by permanently assigning the provider team members.
2. Hospice services should be available to the terminally

ill client and family 24 hours per day, seven days per week.

3. A hospice program should have available, but not be limited to, the services of the following health care providers:
   a. physician
   b. nurse (R.N.)
   c. social worker
   d. pastoral personnel
   e. volunteers
4. Hospice programs should document efforts toward coordination of health care services with existing providers in the service area.
5. As a minimum, the interdisciplinary team of hospice care workers should conduct regularly scheduled monthly team conferences to coordinate and assess the services rendered to each client and family.
6. Hospice care programs should have in place strategies to combat staff turnover and stress.
7. The Montana Health Systems Agency recommends that entities proposing new hospice care programs initiate a four phase development strategy:
   a. plan development — determine hospice model to be used, services to be offered, funding sources, and coordinate and solicit consumer and provider support.
   b. provisional delivery of care — not all hospice services may be delivered initially.
   c. review of program effectiveness and acceptance by service area.
   d. delivery of comprehensive hospice care, if appropriate.

VI PREVENTIVE RISK REDUCTION

CHAPTER 6
PREVENTIVE HEALTH/RISK REDUCTION SERVICES

Pre-care and preventive services include measures taken to **preserve healthful conditions as well as measures taken by individuals to improve and maintain their own levels of** being. As shown in Table 1, this component can be categorized as both community health promotion, and as prevention and detection services. Like other preventive services, it is usually found in community based settings. The National Guidelines, as yet, do not address this component of health care.

— Preventive Dental Services
— Immunization Services
— Maternal and Child Health Care **Services (CHCS)**

	SERVICES Preventive Dental Services	Immun.	Maternal & CHCS
CATEGORIES OF SERVICE			
Community Health Promotion	X	X	X
Prevention & Detection	X	X	X
Diagnosis & Treatment			X
Habilitation & Rehabilitation			
Maintenance Services		X	X
Support Services		X	X
Enabling Services			
SETTINGS			
Community	X	X	X
Home			X
Mobile			
Ambulatory		X	X
Short-Stay			
Long Stay			
Free Standing Support			

TABLE 1

Subject, Categories of Services and Settings Addressed in the Pre-Care and Preventive Health Services Components.

6.1
PREVENTIVE DENTAL SERVICES

GOAL:

All Montanans, especially school aged children, should be knowledgeable of the benefits attributed to preventive dental measures and have access to these measures.

OBJECTIVES:

1. In areas where public water supplies are not fluoridated, local governments should be encouraged to study the feasibility of and solicit support for water fluoridation as a public health measure.
2. By 1985, fluoride mouth rinse programs should be available to all elementary school children not receiving the benefits of fluoridation elsewhere.
3. By 1985, establish dental health programs involving screening and referral services for all elementary school children in Montana. Presently about 20 percent of the elementary school population receive these services. A statewide screening program would require ten hygienists.
4. By 1985, comprehensive dental education programs should be serving 90 percent of the elementary school population in Montana; approximately 50 percent of Montana's elementary school population now receive these benefits. In addition, the Office of Public Instruction and the Bureau of Dental Health should encourage the development of a dental hygiene course in the curriculum of all elementary schools.
5. By 1985, a pilot dental education program directed to expectant mothers should be initiated. This program should stress the dietary practices which are not detrimental to the dental health of the infant.
6. Recognize the need, in Montana, for new preventive programs addressing the dental needs of the geriatric population.
7. Establish a program to study the prevalence of periodontal disease and methods of public education for periodontal disease prevention.

LONG RANGE ACTION

1. College curriculum and continuing education courses for elementary school teachers should stress information in preventive dental care.

1.0 BACKGROUND

1.1 SERVICE DEFINITION

Dental health should be recognized as an essential component of the comprehensive health care system. It has been scientifically demonstrated that early and sustained preventive efforts and treatment, which generally can be easily applied and instituted at relatively low cost, will reduce serious dental problems and costly dental treatment later in life. Poor oral health can affect general physical well being, speech and interpersonal relations.

Diseases of the teeth and gums are among the most common maladies affecting mankind, despite the fact that they are two of the most preventable diseases.

In a 1980 publication prepared by the Department of Health and Human Services, statistics emphasized the extent of oral health problems in the United States:

- By age 17, more than nine of every ten children have tooth decay
- Approximately 14 percent of the 6-11 year olds and 33 percent of the 12-17 year olds have periodontal disease
- By middle age the average person has eleven missing teeth
- 50 percent of the elderly have lost all of their natural teeth
- More than one half of the children 6-17 years of age and almost one fifth of younger children have unmet dental needs

Contrary to popular belief, dental caries are not just problems of children nor are periodontal diseases just problems of adults. Dental disease affects almost the total population. It is however, significant to note that the oral health status of the adult is largely determined by the adequacy of self care and preventive and treatment services received during childhood. Therefore, attention will be directed in this component toward preventive dental services for children.

Oral diseases and conditions affecting children are numerous and include dental caries, periodontal disease, malocclusion, traumatic injuries, cleft lip and palate, oral malignancies and bottle prop caries.

1.2 SERVICES AND SETTINGS

Most dental problems can be avoided through primary and secondary prevention measures. These preventive measures include:

- the use of fluorides,
- dental education programs concentrating on getting people to adopt proper nutritional practices, to brush after meals, and to floss daily,
- dental examinations directed at early case finding and follow-up care.

This document will not address those preventive services routinely and regularly offered by individual dentists and dental hygienists. The latter is implicitly addressed in the Dental Manpower component.

1.3 TRENDS

From a national perspective, there is concern for the oral health of all children in the United States regardless of their socioeconomic status or geographic location and about the most effective use of available financial and service resources.

Possibly because oral health problems are so common and seldom life threatening, they do not receive the attention they deserve from individuals, health officials, legislators or health planners.

The 1980 National Public Health Service recommendations for improving children's oral health are:

1. All community water systems using water deficient in naturally occurring fluoride should be fluoridated to the optimal concentration for the specific geographic area concerned.

2. Where community fluoridation is not feasible other effective dental caries preventive measures should be made available to all children.
3. All dental care financing programs for children should include therapeutic services.
4. Oral health education and oral hygiene practices shown to be practical and effective in reducing the incidence of oral disease should form an integral part of all oral health programs for children.
5. The quality of oral health services should be assured through proper design, administration and monitoring of prevention and treatment programs.

The Dental Health Bureau of the Montana Department of Health and Environmental Sciences has received funding for a Primary Care Research and Demonstration grant to determine the feasibility of a statewide dental screening, fluoride rinse, and dental education program in the schools. This program has been endorsed by the Montana Dental Association and the Montana Dental Hygienists Association. Members of these associations will also participate in the delivery of services.

FLUORIDATION

Several methods of systemic and topical fluoridation are available. These include:

— fluoridating public water supplies,
— the daily use of fluoride tablets or vitamin tablets containing fluoride,
— fluoride mouth rinses,
— daily use of fluoride toothpastes, and
— topical fluoride applications done in the dentist's office.

Table I compares the cost and potential effectiveness of these methods.

Water fluoridation is supported by the American Dental Association, American Medical Association, American Heart Association, National Cancer Institute, American Cancer Society and the U.S. Public Health Service.

Water fluoridation is advantageous in that it is generally inexpensive and the entire community benefits from it regardless of economic or educational level, individual motivation, or the availability of dental professionals. No direct action is required of the individual. A major disadvantage of water fluoridation is that its application is limited to areas served by central water supplies.

Table 2 shows the costs of fluoridation in selected Montana communities. The per capita cost varies from $.06 to $1.35 per person per year. The American Dental Association estimates that water fluoridation costs about $.20 per capita annually. The state average, $.19, is 5 percent lower than the ADA's estimate.

Fluoride mouth rinse programs could provide significant reductions in dental decay for less that $.50 per year for each child. A large number of studies have demonstrated that a supervised use of sodium fluoride mouth rinse (0.05 percent daily, or 0.2 percent weekly) at school or at home may produce a 20 to 50 percent reduction in caries experience.

Topical fluoride is typically applied in the dentist's office. The cost and the number of times the treatment is given depends upon the age of the child, the type of fluoride used and the amount of fluoridation in the water supply. In areas of non-fluoridated water, this treatment is recommended twice yearly. This method requires a thourough cleaning of teeth before the fluoride is applied. Professionally applied fluorides will reduce tooth decay by 30 to 40 percent, but this treatment has a higher relative cost than those preventive procedures previously mentioned.

TABLE 1

A Comparison of the Unit Costs and Potential Effectiveness of Different Fluoride Programs.

Method of Fluoridation	Dollar Cost/Person/Year	Potential Reduction in Decay
Water Supply	$ .20 [1]	50-60%
Fluoride Mouth Rinse	$ .50	20-50% [2]
Fluoride Tablets	$5.48 [3]	Potentially same as water fluoridation [4]
Topical Fluoride Applications	$24.00 - 40.00 [5]	40%
Fluoride Tooth Paste	$14.00 - 15.00 [6]	15-30%

1) Based on American Dental Association estimates.
2) Assuming the rinse is administered weekly.
3) Based on retail value of prescription fluoride tablets, $1.50/100.
4) Potential reduction in decay experience dependent upon whether or not the fluoride tablet is taken every day. For best results, the procedure should be started in kindergarten and continued until the eighth grade. School sponsored programs realize a 20 to 30 percent reduction in decay experience.
5) Based on a charge of $12.00 to $20.00 per application administered twice a year in areas not receiving fluoridated water.
6) Assuming 7 ounces of fluoride tooth paste is consumed every 4-5 weeks at approximately $1.30/7 oz. tube.

DENTAL HEALTH EDUCATION

Public education is necessary to make the public aware of the need for regular professional care and to learn those preventive measures which help deter dental problems. Normally, dental health education programs are directed primarily to school aged children. However, there is a need for the education of expectant mothers to the value of fluoride in prenatal months and the importance of their own personal hygiene. Attention should also be directed to the adult population relative to periodontal disease, oral cancer, and geriatric care.

The content of school based dental education programs should vary with the grade levels of the children. For example, dental education programs for elementary school students in grades 1 through 6 typically include information on why the teeth and gums are important, causes of tooth decay (including what foods can be consumed which benefit the teeth), and a demonstration of proper brushing and flossing techniques. Consideration should be given to behavior change modules.

DENTAL SCREENING

A number of programs have been established to perform superficial examinations and classify the mouth with respect to dental care needs. If a person needs dental attention, he/she is referred to a dentist of his/her choice. Normally, no treatment is provided by the program, but follow-up is initiated to assure that each problem is identified and referred. These programs are, for the most part, offered by some of the local health departments.

DENTAL EXAMINATIONS

The preventive procedures which can be employed in the dentist's office to assure proper dental health maintenance are:

- — an examination to identify dental problems in the early stages of development,
- — topical fluoride applications to strengthen tooth enamel against decay,
- — periodic professional prophylaxis,
- — periodic recall and maintenance, and
- — home care instructions, such as proper brushing and flossing methods.

NUTRITION EDUCATION

Education in the area of nutrition for oral health should also be a priority. Certain foods are more deleterious to the teeth than others. Highly cariogenic foods have several things in common: (1) they are eaten frequently, often between meals; (2) they have the ability to increase the acidity of the plaque; (3) they are adhesive or sticky and may be retained in the oral cavity for a long period of time; and (4) they contain sucrose or some other fermentable sugar. Foods containing 15 to 20 percent or more added sugar (especially sucrose) are considered potentially cariogenic and unsafe as snack foods.

Since there is indeed a special type of nutrition that is needed to promote oral health, dietary recommendations can be made by health practitioners and nutritional education can be offered. In a study sponsored by General Mills, Inc., results indicated that children of all ages do in fact have a high level of nutrition knowledge about dental health. Knowledge increases as age increases, probably due to the older childrens greater exposure to nutrition information. When children can correctly identify appropriate foods for meals and snacks, demonstrate an understanding of the basic food groups, and exibit an awareness of the health benefits of various foods, the possibilities of good dental health are greater.

2.0 CURRENT SITUATION

2.1 AVAILABILITY

A number of Montana communities, 77, have naturally fluoridated water supplies. In addition, 24 other communities, including Glasgow Air Force base, have voluntarily chosen to fluoridate their water supplies. The location of all communities with fluoridated water is shown in Figure 1; In all, about 29 percent of Montana's population is drinking fluoridated water; 20 percent naturally fluoridated and nine percent artificially fluoridated. From an examination of Figure 1, one can draw two conclusions. First, most of the fluoridated water supplies are east of the Continental Divide. Otherwise, there appears to be no pattern to the naturally or artificially fluoridated water supplies. Second, it is apparent that most of the larger communities in Montana do not have a fluoridation program.

The limited, localized programs which have been conducted in Montana have demonstrated that, for investments of relatively small amounts of money, dramatic improvements can be realized in the general condition of children's teeth. For example, several studies have been conducted in Montana to determine the dental health improvements attributable to fluoridation programs.

The Bozeman Dental Society, along with the respective school authorities and the Dental Division of the State Board of Health, conducted a ten year study in Bozeman from 1953 to 1963. The study demonstrated a 41 percent reduction in decay experience in seven schools, grades one through nine, when compared to fluoride deficient children. Similarly, Roundup conducted a ten year study and found a 60 percent reduction in decay experience.

As an alternative to fluoridating the water supply, the Anaconda school system participated in a demonstration program designed to evaluate the effectiveness of fluoride mouth rinses as a public strategy. The study began in 1975 and was completed in 1979. Over 90 percent of the eligible children participated in the Fluoride Mouth Rinse Program. During the 1978-79 school term a total of 1,250 students were served. The study indicated a significant reduction in dental caries:

1975-1976

Class I	12 percent
Class II	56 percent
Class III	32 percent

1976-1977

Class I	7 percent
Class II	57 percent
Class III	36 percent

1977-1978

Class I	4 percent
Class II	37 percent
Class III	59 percent

1978-1979

Class I	1.5 percent
Class II	36 percent
Class III	62.5 percent

Class I indicates emergency dental care is required
Class II indicates some dental care is necessary
Class III indicates (through visual examination) no need for dental care. Fluoride mouth rinse programs in the school offer the following advantages:

- — The procedures have proven effective in reducing tooth decay. (Weekly mouth rinsing with a fluoride can lead to a 20-50 percent reduction in cavities)

TABLE 2

Fluoridation Costs Per Capita Per Year Among Montana Communities Fluoridating Water - 1977.

Community[4]	Date Fluoridation Started	Water Supplies Treated	Approximate Total Gallonage of Water Treated With Fluoride	Approximate lbs. of Fluoride Used/1977	Approximate Dollar Expenditure for Fluoride 1977	Approximate Number People Receiving Fluoridated Water/1977	Dollar Cost of Fluoridation Per Capita 1977 [5]
Bozeman	1953	2	1,955,000,000		5,000.	30,000	.17
Crow Agency	1968	1	112,000,000	800	462.	1,300	.36
Ennis	1972	1	960,000		52.	575	.09
Hardin	1973	1	226,815,000	1,900	1,052.60	3,320	.32
Harlem	1973	1	53,916,000	1,200	1,354.	1,000	1.35
			668,321,000[1]	6,330[1]	981.[1]		.16[1]
Laurel	1958	1	477,500,000[2]	4,523[2]	701.[2]	6,000	.12[2]
Miles City	1955	1	498,000.000	1,812	563.	9,975	.06
Rocky Boy	1972	1	11,000,000	300	168.	300	.56
Roundup	1952	1	160,000,000		700.	2,500	.28
Scobey	1971	1	72,752,000	900[3]	630[3]	1,555	.41
St. Ignatius	1966	1	15,846	200	25.	193	.13
						STATE AVERAGE	.19

1 includes approximately 190,821,000 gallons of fluoridated water -- for industrial use

2 excludes approximately 190,821,000 gallons of fluoridated water -- for industrial use

3 projected for a 12-month period based on data available for eight months

4 not included are Poplar, Box Elder, and Elmo

5 dollar cost may be subject to error due to reporting error and occasional fluoridation stoppages

— Few materials and supplies are required; thus, these programs are inexpensive (the Bureau of Dental Health estimates the cost of the Anaconda Fluoride Mouth Rinse Program at about $.50 per child per year.
— Non dental personnel with minimal training can easily supervise the procedures, and
— the procedures can be administered easily with minimal interruption of a school's academic program (five minutes is required each week.)

For the past two decades, considerable research has been conducted nationally on the use of fluoride tablets in schools. Results show that tooth decay can be reduced 20 to 35 percent by the daily use of a fluoride tablet in school. Fluoride tablets are prescribed for children through fourteen years of age, the years during which the permanent teeth are developing. Presently, there are no school-based fluoride tablet programs in Montana.

2.2 ACCESSIBILITY

Dental education programs are available through a variety of settings; however, the Bureau of Dental Health, Montana State Department of Health and Environmental Sciences, is probably the leading sponsor of these programs. With a relatively small operating budget, the Bureau of Dental Health has initiated or sponsored several educational programs. Most of these have been aimed at school children. The following paragraphs describe these programs, their impact and their costs.

The School Preventive ("Brush In") program provides elementary school children with a new toothbrush, a demonstration on how to use it to control dental disease, and a dental health lecture explaining the cause of dental disease and ways of preventing it. The School Preventive Program enables children to learn how to control their own gum disease and dental caries. Table 3 shows the number of children in Montana schools by subarea and county who participated in the "Brush In" program during the 1979-1980 school year. During this period, approximately 50 percent (47,683 children) of all elementary school children enrolled in public schools in Montana were reached by this program. The operating budget for the School Preventive Program during 1979-1980 was $25,617.00, $.54 per student per year.

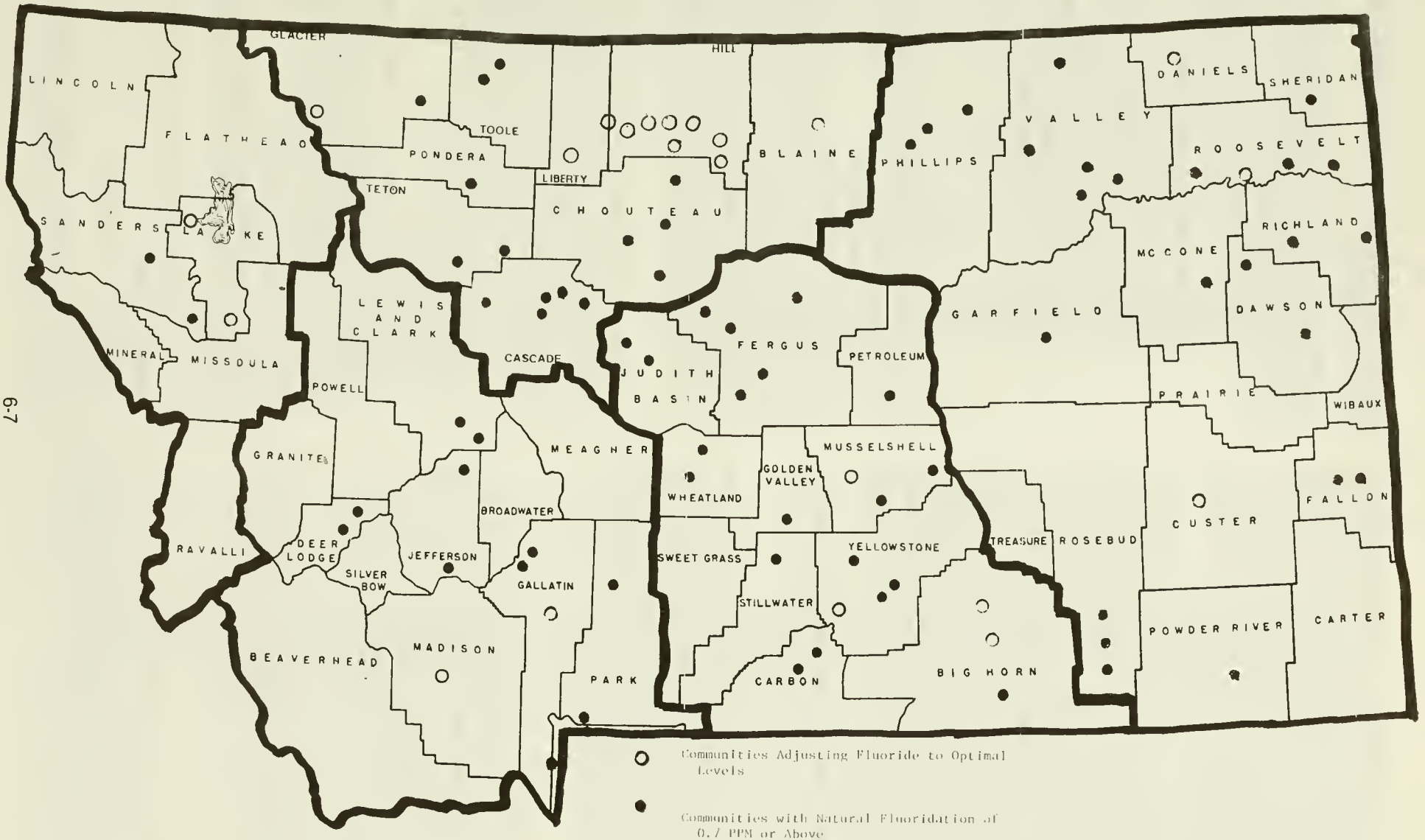
It appears that the subarea in which the most children are receiving the services of the "Brush In" program is the North Central subarea, with 62 percent of the total elementary school population contacted. Conversely, the subarea in which the percentage of children receiving the services is lowest is the South Central subarea, with only 24 percent of the total elementary school population receiving the benefits. Certain counties warrant special attention since the contact rate is below 50 percent for the "Brush In" program among elementary school children. These counties are Lake, Missoula, Glacier, Liberty, Big Horn, Stillwater, Yellowstone, Phillips, Blaine, Lincoln, Roosevelt, Toole, Valley and Gallatin. The school systems in these counties may be targets for increased efforts to get their participation rate higher.

The Cascade City-County Health Department is also sponsoring a program aimed at second and fifth grade school children in Cascade County. Students in the second grade are taught proper brushing techniques and good nutrition while fifth graders are taught flossing techniques, in addition to brushing and nutrition education. The health department is also sponsoring a "Brush In" program for kindergarteners.

Shodair Montana Regional Genetics Services Program offers genetic counseling regarding Cleft Lip and Cleft Palate.

FIGURE 1

Montana Communities with Naturally and Artificially Fluoridated Water Supplies.



In addition, the State Department of Health and Environmental Sciences, Maternal and Child Health Bureau, has operated a Cleft Lip and Palate Program since 1954. The program staff encourage preventive dentistry. Parents are advised of the benefits and the program authorizes payment of preventive dentistry for those families who are eligible. The program was available to 460 Montana children in 1979-1980. Services were provided to 260 youth. Cleft Lip and Palate teams are held in five communities: Missoula, Great Falls, Billings, Butte and Helena.

The Flathead Children's Dental Health Project demonstrates a method of providing comprehensive dental services and preventive services to children in Flathead County and a way to measure the impact on the dental health of all the elementary school children in the County. The Flathead County Children's Dental Health Project screened and provided preventive services to 5,336 elementary school children during the school year. Initial and recall maintenance dental treatments were completed for 347 children by the dentist of their choice during the same period. Screening results show that approximately 85 percent of the elementary school children in Flathead County need no dental care, compared to 44 percent needing no dental care nine years ago when the project began. Projections by the Dental Health Bureau indicate that within 20 years, dental disease would be nearly non-existent in Montana if a similar program were funded for all children in the state.

The Dental Health Bureau estimates that it would take ten hygientists to carry out a statewide screening program in Montana at a cost of $476,000 to $500,000.

Several county health departments in Montana also provide dental screening and treatment services. Lewis and Clark County is served through the Children and Youth Program, which offers a dental exam, prophylaxis, restorative care, dental hygiene, nutrition education, and follow-up care. Jefferson, Broadwater and Powell counties are also served in this program. A Dental Hygienist will be hired to implement a Preventive Dental Health program in the public schools, grades K-6.

The Advisory Dentist to Long-Term Care Facilities Project was designed to provide screening to all patients in Montana's long-term care facilities to determine their dental health and oral hygiene needs. The program insured that dental care services and oral hygiene assistance was available to all such patients. Seventy-seven of the seventy-nine long-term care facilities in Montana participated in the program with 78 percent of the long-term care facility patients participating. The Advisory Dentist designed and presented in-service training programs to fit the oral hygiene needs of patients in each facility. Twenty-six (26) percent, or 960 long-term care patients, were referred to their dentists for care. The program was discontinued through the Dental Health Bureau since facilities implemented advisory dentist programs. However, the Bureau plans to reinstate the program in 1981 in cooperation with these advisory dentists.

2.3 COST

Table 1 presents the expected per capita annual cost for five preventive dental health programs as well as the resultant expected potential reduction in decay experience. The fluoridation of public water supplies appears to offer the most effective preventive dental health strategy, both in terms of per capita cost and the potential reduction in decay experience.

3.0 FUTURE RESOURCE REQUIREMENTS

3.1 AVAILABILITY

The purpose of this section is to estimate the theoretical costs, potential savings, and possible impacts of selected dental prevention strategies which could be undertaken in Montana. The five strategies are:

- a mandatory program requiring communities of 1,000 people or more to fluoridate their water supplies,
- a voluntary water fluoridation program aimed at the six largest cities in Montana not fluoridating their water supplies,
- a fluoride mouth rinse program aimed at all elementary school children in Montana not receiving the benefits of fluoridated water,
- a fluoride tablet program aimed at all elementary school children in Montana not receiving the benefits of fluoridated water, and,
- an expansion of the Dental Health Bureau's "Brush In" program aimed at all elementary school children in Montana.

The mandatory fluoridation program is based upon a bill considered by the 1971 Montana legislature which did not pass. If this bill had been enacted, it would have required all incorporated communities of 1,000 or more persons to fluoridate their water supplies.

The voluntary fluoridation program would be arbitrarily aimed at the six largest communities which do not currently have fluoridated water supplies. These communities are Missoula, Butte, Billings, Helena, Kalispell, and Anaconda. Approximately 67 percent of the Helena population is not served by fluoridated water; all five of the other communities are totally unserved. The MHSA's role in this type of program, if such a policy were adopted, would be to support any initiative aimed at fluoridating the community's water supply.

The third strategy involves expanding the Anaconda fluoride mouth rinse program to all the elementary school systems in Montana. Schools offer a logical place of administering self-applied fluorides to children, since they are the group who can realize the greatest benefit from fluoride treatments. The mouth rinse procedure requires only five minutes each week and can be administered by non-dental personnel. The MHSA's role in such a program could range from general support to possible funding when and if area wide health development funds become available.

3.2 ACCESSIBILITY

The analysis of each fluoride program and its related costs, the potential savings to be realized, and its estimated impact on dental caries is crude and is only intended to provide a basis for comparing each alternative program. Before any policy decisions are made or any strategies implemented a more sophisticated analysis should be undertaken by the community considering the program.

The assumptions used in the analyses are intentionally conservative so that the potential impact and savings may be understated.

The following equations were used in this analysis:

PROGRAM COSTS

Program Costs = (population) affected × cost/person/year × 6 years.

The population affected includes only those additional persons who would be served by the program. For the man-

TABLE 3

Elementary School Children Receiving "Brush In" Program - 1979-1980

County	Total Number Elementary Students Participating[1] 1976-1977 Grade K-8	Total Number Elementary School Children[2] 1976-1977 Grades K-8	Percent Receiving Benefits 1976-1977
Northwestern			
Flathead	5,360	7,195	74
Lake	38	2,822	1
Lincoln[4]	1,000	2,788	36
Mineral	549	616	89
Missoula	3,835	9,378	41
Ravalli	2,925	3,251	90
Sanders	1,092	1,307	84
Subtotal	14,799	27,357	54
North Central			
Blaine	0	1,123	0
Cascade[4]	7,190	10,076	71
Choteau	608	806	75
Glacier	599	1,986	30
Hill	1,533	2,352	65
Liberty	0	293	0
Pondera	838	1,044	80
Teton	723	816	89
Toole	337	713	47
Subtotal	11,828	19,209	62
Southwestern			
Beaverhead	711	1,089	65
Broadwater	347	443	78
Deer Ledge	1,496	1,785	84
Gallatin	1,244	4,683	27
Granite	292	383	76
Jefferson	956	1,123	85
Lewis & Clark[4]	2,272	6,083	37
Madison	472	621	76
Meagher	204	274	74
Park	1,134	1,663	68
Powell	776	956	81
Silver Bow	1,800	5,176	35
Subtotal	11,704	24,279	48
South Central			
Big Horn	0	1,690	0
Carbon	722	1,016	71
Fergus	1,231	1,605	77
Golden Valley	147	145	100
Judith Basin	313	313	100
Musselshell	478	583	82
Petroleum	85	85	100
Stillwater	232	758	31
Sweet Grass	286	417	69
Wheatland	186	322	58
Yellowstone[4]	1,397	13,923	10
Subtotal	5,077	20,859	24
Eastern			
Carter[3]	0	214	
Custer	1,320	1,403	94
Daniels	458	458	100
Dawson[3]		1,512	
Fallon[3]		563	
Garfield[3]		195	
McCone[3]		496	
Phillips		727	0
Powder River	300	357	84
Roosevelt	853	1,825	47
Rosebud	835	1,588	52
Sheridan	474	653	73
Treasure	118	130	91
Valley		1,607	0
Wibaux[3]		235	
Subtotal	3,608	11,963	30

1 Number of students by county who participated in a "brush in" program during the 1976-1977 school year. Total includes 1) those programs actually delivered by Bureau of Dental Health, 2) those programs for which the Bureau of Dental provided training, supervision, and/or supplies, and 3) those programs initiated by the Bureau of Dental Health

2 Summary of Public School Enrollment by Grade and County, 1976-1977, Office of Superintendent of Public Instruction

3 Rural Health Initiative Service Area (Glendive) "Brush In" program initiated by Bureau of Dental Health, serving 5,570 children in eight counties

4 These figures do not reflect several programs currently in existence in Cascade County, Lincoln, Silver Bow Counties

datory fluoridation program, those persons (27 percent) already on fluoridated water are excluded.

For the school fluoridation programs, it is assumed that the same proportion of children are currently on fluoridated water and therefore are not included in this program.

The unit costs of each program are reported in the previous section. They are:

- — water fluoridation - $.19 per person, per year (based on the data shown in Table 2)
- — Fluoride Mouth Rinse Program - $.50 per child per year (based upon the experience of the Anaconda Program)
- — fluoride tablets - $2.70 per child per school year, (180 days) (based upon the retail cost of $1.50 per 100 tablets and assuming they are taken daily)
- — "Brush In" program — $.48 per child per year (based upon the State Dental Bureau's current experience)

A six-year time frame was adopted because the full impact of any prevention program is not realized immediately, with the exception of a fluoride mouth rinse program. Horowitz, in a nationally accepted article, states that the cost for incremental dental care in Newburgh, New York was 50% lower six years after fluoridation was first initiated. The Bozeman and Roundup fluoridation studies, reported earlier, arbitrarily used a ten year followup to evaluate fluoridation benefits.

Expected Savings

Expected Savings = Population Affected × Average per capita annual cost for dental care × estimated program effectiveness.

The population affected is the same as that used in estimating costs. The annual average per capita cost, for dental care is assumed to be $59.64 based on 1978 data.

The estimated program effectiveness is reported in the previous section. It is:

- — water fluoridation - 50-70% according to nationally accepted data.
- — Fluoride Mouth Rinse Program - 20% reduction (weekly mouth rinsing with a fluoride solution can reduce the number of cavities from 20-50 percent)
- — fluoride tablets — 20% reduction (school based programs have demonstrated a 20 to 35 percent reduction in decay experience when children are given a fluoride tablet each day).

It is assumed that no savings will be realized until the sixth year of the program. This is very conservative since some dentists suggest that there are immediate benefits from fluoridation.

Net Savings

Net savings = dental care savings at the end of six years — the six year costs of fluoride.

Percentage of Total Population Affected

% Population affected = population affected by fluoride program + population presently utilizing fluoridated water

The persons currently on fluoridated water supplies (27%) are included in the estimates although they are not included in the cost and savings estimates.

TABLE 4

Expected Costs, Savings, and Impact of Four Fluoridation Strategies in Montana Over a Six Year Period.

Program	Target Population	National Cost: Benefit Ratio 1)	Six Year Program Cost	Expected Savings on Dental Care 2)	Net Savings on Dental Care 3)	Percent Population Reached 4)	Potential Reduction in Dental Caries In Montana 5)
Mandatory Water Fluoridation	All Communities of 1,000 People or More	1.65	$287,196	$3,579,869	$3,292,672	63%	21%
Voluntary Water Fluoridation in Six Major Montana Cities	Missoula, Butte, Billings, Helena, Kalispell, Anaconda	1:65	178,445	2,224,306	2,045,861	49%	13%
Fluoride Mouth Rinse	Elementary School Children Not Receiving Fluoridated Water	1:25	244,935	2,784,420[6]	2,539,485	39%	2.7%
Fluoride Tablet	Elementary School Children Not Receiving Fluoridated Water	1:5	1,322,649	464,070	None	39%	2.7%

1) International Workshop on Fluorides and Dental Caries Reductions, School of Dentistry, University of Maryland, 1974, p. 109.
2) The savings on dental care expenditures attributable to the fluoride program, and assuming no savings are realized until the sixth year after the fluoride strategy is implemented.
3) The savings on dental care expenditures resulting from the fluoride program after the cost of the fluoride is subtracted.
4) Represents the total percentage of Montana's population that would be receiving fluoride benefits if a particular fluoride program was implemented. Includes the 27 percent presently on fluoridated water.
5) The percentage reduction in decay experience which can be expected in Montana, including people receiving the fluoride and those not receiving any fluoride. This percentage reflects how the decay experience can be reduced within the entire population of Montana if a fluoridation program is implemented for a target group.
6) The benefits are Immediate with fluoride mouth rinses.

Net Reduction in Dental Caries in Montana

For water fluoridation programs:
% Reduction in Dental Caries = y(pop. not on fluoride) + 5y(pop. on fluoride = .865 y.

The denominator is estimated by assuming that 27 percent of the population currently on fluoride has 50 percent less dental caries. The term "y" denotes the average number of dental caries in a non-fluoridated population. Since it is in both the numerator and the denominator, it is factored out in the calculation.

Results

Table 4 presents the resultant costs, potential savings and estimated decrease in dental caries for each of the four fluoridation programs if they were implemented for six years, and assuming no benefits would be realized for the first five years. In all cases except the fluoride tablet program, the savings are considerable.

The effectiveness of the school "Brush In" program cannot be evaluated. However, based upon the Dental Health Bureau's program in the past, the total budget to reach all elementary school children in Montana would be $53,653 per year.

In addition to these programs, many informational materials are available free of charge for dental health education from the Dental Division of the Montana State Board of Health. Some life insurance companies, the National Dairy Council, and state and local dental societies offer dental health information materials.

3.3 COST

Major emphasis is being placed on the cost-effectiveness preventive practices. Spending for dentist's services in the U.S. amounted to $13.3 billion in 1978. Per capita expenditures for dental services have climbed steadily from $10.75 in 1960, to $22.79 in 1970, and to $59.64 in 1978. When one considers that inexpensive community water fluoridation has been shown to reduce the cost of dental treatment services to children by about one half, one can easily see the savings. If however, the cost of prevention and treatment were equal it still makes more sense to prevent rather than treat disease. Prevention results in less pain and reduces the need for trained professional personnel. The Flathead Project estimated that 12 percent of the children had the occurrence of decay initially whereas only three percent had the occurrence of decay upon completion of the program. Considering a Statewide Project, this could mean a reduction of decay occurrence in children from 2471 children with decay to 618. A cost benefit ratio was calculated for a Statewide Program. For every $6.00 spent on prevention for this project, there is $30.00 saved. In 1971-72, the project cost $47,000 for services to 1,548 youth. In 1979-80, 5,336 youth were served, including treatment for $29,000. In the face of inflation, these are dramatic figures.

4.0 GENERAL ANALYSIS

4.1 ALTERNATIVES AND ISSUES

Dental disease prevention programs are strongly endorsed by most professionals and are justified by dismal statistical measures of dental health, yet there still appears to be some resistance to community fluoridation programs in Montana. Continued education will be needed to inform residents of the benefits of such a preventive measure. Slow, but steady progress is being made. However presently only 29 percent of Montana's population is drinking fluoridated water and 20 percent is due to natural fluoridation.

Due to the rural nature of the state the entire population is not served by community water systems. One alternative trend is the utilization of school floridation in schools which have their own (separate) but fluoride - deficient water supplies. Reductions of up to 40 percent in the prevalence of dental decay can be expected from school fluoridation. The recommended optimum fluoride concentration for school fluoridation is 4.5 times the amount for community fluoridation in the area. Once a school fluoridation system is initiated it must be monitored and serviced regularly.

Aside from stressing the importance of fluoridation in community water supplies, a caution should be noted toward over fluoridation. This is a problem in water supplies in some Eastern Montana communities.

Although the use of fluorides are helpful in preventing tooth decay, simply implementing this procedure is not enough. Oral health education should be an integral part of any oral disease preventive program. This education should be a part of the health curriculum of every primary and secondary school and all oral health programs for children. It is important for residents to understand what fluoride is and how it protects teeth from decay. Well-structured oral health education programs will also teach appropriate nutrition concepts and dietary practices as they relate to oral health.

Educating persons in proper oral hygiene practices is one aspect, motivation is another. Care should be taken to select approaches that have been demonstrated to be effective in inducing proper behavior and in reducing the incidence of oral diseases. These approaches should be evaluated carefully when implemented; the design and administration of such programs should be reviewed periodically and baseline information recorded by which judgements can be made regarding changes in the quality of dental services.

Primary emphasis is given in this component to preventive dental services to children. As aforementioned this is due to the fact that the oral health status of the adult is largely determined by the self care and services received as a child. However, specific preventive measures benefit all citizens. As referenced earlier, the State Department of Health and Environmental Sciences will reinstate the Long-Term Care Facilities Project. Various studies have indicated that the aged and chronically ill nursing home population have more dental problems than the general population. This population could greatly benefit from preventive services, especially those related to daily oral hygiene procedures.

Periodontal disease is another issue which warrants attention in the future.

The importance of preventive dental services is unquestioned. The challenge now is to make maximum use of available resources, expand public support and develop appropriate, high quality services at the most reasonable cost.

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APPENDIX 1

Communities Adjusting Their Fluoride to Optimal Levels By Subarea

Community	Population*	Date Fluoridation Started
Eastern		
Miles City	9,023	1955
Poplar	1,389	1970
Scobey	1,485	1971
Glasgow A.F.B.	3,000	1961
Subtotal	14,897	
South Central		
Crow Agency	1,000	1968
Hardin	2,733	1973
Laurel	4,454	1958
Roundup	2,116	1952
Subtotal	10,303	
Southwestern		
Bozeman	18,670	1953
Boulder	947	1968
Ennis	501	1972
Subtotal	20,118	
North Central		
Box Elder	170	1972
Browning	1,700	1968
Chester	936	1969
Gildford	300	1969
Harlem	1,094	1973
Hingham	262	1969
Inverness	170	1969
Joplin	260	1969
Kremlin	190	1969
Rocky Boy	175	1972
Rudyard	600	1969
Subtotal	5,857	
Northwest		
Elmo	210	1967
St. Ignatius	925	1966
Subtotal	1,135	
State Total	52,310	

6.2
IMMUNIZATION SERVICES

GOAL:

Immunization services should be affordable and available to all Montana residents.

OBJECTIVES:

1. By 1985, ensure that at least ninety (90) percent of the preschool and school age entering children are adequately immunized against measles, rubella (under 13 years) diphtheria, pertussis (under age 7), tetanus, poliomyelitis and mumps.
2. Communities should be served by public awareness programs concerning the need for primary and booster immunizations.
3. The Statewide School Immunization Law will be monitored for compliance and amended if the current law does not meet the intended need.
4. Private day care centers should promote complete immunization of children in their care.
5. Insure the immediate containment and control of any vaccine preventable disease outbreak which might occur.

LONG RANGE ACTIONS:

1. Selected educational campaigns should be initiated, especially classes for new parents.

1.0 BACKGROUND

1.1 SERVICE DEFINITION

The primary purpose of immunization programs is to prevent and control those diseases for which there is a safe and effective vaccine available. Seven vaccine preventable diseases which can be effectively prevented by immunization are: measles, polio, rubella (German measles), mumps, diphtheria, pertussis (whooping cough), and tetanus.

These diseases, when not prevented, can cause a variety of medical complications and even death. Possible complications of measles (rubeola) include otitis media, ear infection, pneumonia, or encephalitis which can result in mental retardation or death in children.

It is important that parents and guardians understand tne protection vaccines offer and what risks, if any, vaccines pose for children.

Vaccines are among the safest and most effective toxoid; however, there are sometimes side effects. These are usually mild and brief in duration (i.e., slight fever, sore arm, mild rash). On rare occasions they are more serious. For this reason, vaccines should be given by a physician or other health professional.

In Montana, during the first seven months of this year there was one vaccine reaction (DTP) reported which was serious enough to warrant a physician's attention. The patient's recovery was rapid and uneventful, and active statewide surveillance failed to reveal any other similar reactions to that vaccine.[1]

Because of this minimal risk factor, the majority of medical experts believe the benefits of complete immunization far outweigh the risk. The Public Health Service, U.S. Department of Health and Human Services, strongly recommends that all healthy children be immunized against all the vaccine preventable childhood diseases.[2]

Another group at particular risk of the consequences of a communicable disease are pregnant women. Infection with rubella during the first three months of pregnancy can cause serious damage to the developing child (mental retardation, deafness, congenital heart disease, blindness, and other birth defects). In Montana, approximately eleven (11) percent of women of child bearing age are at risk for rubella infection.[3]

Small pox vaccination is no longer recommended because even the slight risk of immunization sequelae now exceeds the risk of contrac ting smallpox, and because smallpox is at an extremely low level worldwide.

1.2 SERVICES AND SETTINGS

Little is known about specific immunization levels in the general population. Estimates must be inferred from the morbidity and mortality rates of the diseases themselves.

The Preventive Health Services Bureau of the Montana Department of Health and Environmental Sciences recorded the following Montana statistics regarding the morbidity and mortality of vaccine preventable childhood diseases:

Morbidity

In 1977, Montana led the country in the case rate of measles for most of the year, with over 1,000 cases of measles reported.

Mortality

Between 1965 and 1969 there were three reported deaths due to vaccine preventable diseases in Montana. One death was due to poliomyelitis (1968) and two deaths due to measles (1969).

Between 1970—1979 there were six deaths reported: two deaths due to diphtheria (1970), two deaths due to measles (1974) and two deaths due to poliomyelitis (1971 and 1974).

1.3 TRENDS

The great success of previous immunization has created a complacency in this nation. Although polio was a fairly common disease prior to 1954, it is tempting to view the minimal occurence data from recent years as proof that polio is no longer a threat. In 1977, almost 19 million children, or thirty-six (36) percent of all youngsters 14 years of age and under, were not immunized against this once feared disease.[4] When children are not protected polio can strike and spread.

In 1976, more than a third of all children under age 15 were not completely immunized. The following year rubella cases increased by sixty-three (63) percent, measles cases by thirty-nine (39) percent, and whooping cough cases by one hundred fifteen (115) percent.[5]

In response to the low immunization levels and disease increase, parental awareness campaigns were started at the national and local levels.

Prior to the national childhood immunization initiative which began in 1977, one quarter to one-half of U.S. pre-school and

school age children remained incompletely immunized. Today the situation is improving. The gains of the past three years have demonstrated that national and local campaigns are needed on a sustained basis to increase parental awareness of the need for immunization and to maintain immunization at an acceptable level.

2.0 CURRENT SITUATION

2.1 AVAILABILITY

In Montana immunizations are provided by several health providers.

It is estimated that approximately seventy (70) percent of pre-schoolers receive their immunizations from private physicians.[6]

City-County Health Departments and public health nurses provide immunizations to the public. Most offer immunizations in more than one setting: schools, well-child clinics, rural immunization clinics and in health department offices. Several examples of immunization services in schools are:

- — In Richland County, Sidney is a community growing rapidly due to energy development. The county health nurses go to the schools every month to bring new students to current immunization levels.
- — The public health professionals from Lake County have a rural area to serve. Each April they travel to the rural schools for a County Wide Immunization Program. Advanced publicity encourages parents to also bring preschoolers to the school.
- — Cooperative immunization efforts also exist throughout the state. Lewis and Clark County Health Department and District No. 1 School Nurses work together to offer immunization to school children in Helena, Montana.

2.2 ACCESSIBILITY

Forty-one nurses employed by boards of education provide school children with health supervision services in eighteen counties (See Maternal and Child Health Component, Figure 2.)

One rural community, Harlowton has developed a unique delivery system. A volunteer womens' group coordinates monthly clinics. One of the members is a registered nurse who administers the immunizations.

The Indian Health Service (IHS) provides immunizations on the state's seven Indian reservations. Among the population they serve, in Montana, the IHS has achieved a ninety (90) percent immunization level for children under 27 months of age.[7]

Primary Care Research and Demonstration Projects also offer immunization services. Five Valleys Health Care, Inc. of Missoula maintains a "tickler file" to remain current on the immunization needs of their clients.

The Community Vaccination Program supports the immunization activities of each of the counties through vaccine supply, consultation, and organizing and staffing for special clinics. The program is operated by the Preventive Health Services Bureau, Montana Department of Health and Environmental Sciences. A Field Health Officer is based in each of the following locations: Missoula, Butte, Billings, and Helena; forty (40) percent of their time is designated for immunization activities.

The Preventive Health Services Bureau also provides vaccine to public and private providers free of charge. Those who administer vaccines supplied by the Community Vaccination Program are asked to provide monthly reports on usage, provide adequate notification of the risks and benefits of immunization to patients, parents or guardians (Consent form signed) and report significant vaccine reactions. The Bureau provides a toll free "hotline" for reporting reactions.

Presently, only six private providers are administering vaccines provided by the State Department. Many public providers use the service. Various public providers purchase their vaccine directly from distributors.

The following compares the number of doses of vaccine administered by Montana's public providers for four successive calendar years:[8]

	1976	1977	1978	1979
POLIO	10,670	11,678	19,200	23,119
DTP	6,958	7,460	13,064	15,086
Td	4,181	4,534	8,003	10,955
MR(Measles/ Rubella)	3,263	5,917	3,420	2,101
MMR(Measles/Rubella/Mumps)	1,634	2,031	4,028	5,606
MEASLES	6,825	4,777	2,987	4,973
RUBELLA	811	224	773	1,372
MUMPS	754	990	1,780	1,804
TOTAL	35,096	37,611	53,255	65,016

2.3 COST

The cost of immunization services varies in Montana. A random call was made to several private doctors and clinics through-out the state. The difference in cost was approximately $2.40 for DTP and Polio. Charges ranged from $4.60 to $7.00 for these vaccines.

For those private professionals who receive free vaccines from the state, the cost is for administration. One doctor offers immunizations free when accompanied with a well-child checkup; without the checkup the cost is $5.00 per vaccine. In one rural community the local doctor feels so strongly in support of immunization that he charges $1.00 in administrative fees for the free state vaccines distributed. Most clinics charge approximately $3.00 per vaccine.

The County Health Departments and nurses offer immunizations at no cost to clients who cannot pay. Some counties charge a fee of $2.00 to those who can afford to pay or a donation is accepted.

Public health officials place a high priority on immunization of children and many of the school clinics are completely free of charge. Indian Health Services also do not charge for this service.

3.0 FUTURE RESOURCE REQUIREMENTS

3.1 AVAILABILITY

Immunization services are generally available to the citizens of most Montana counties through private physicians and public health nurses. However, there are ten counties in Montana which presently have no community health or school nursing services. These counties are:

Carter ★	Petroleum
Daniels	Prairie
Golden Valley	Sweet Grass
Liberty	Wheatland
Madison	Meagher

*Served by PHN from Fallon County

The Community Vaccination Program, in the Preventive Health Services Bureau, Montana Department of Health and

Environmental Sciences, does provide outreach immunization clinics. The program should be encouraged to cover these counties with clinics or create linkages with neighboring county services.

3.2 ACCESSIBILITY

Immunization clinics should be scheduled to allow the maximum use by community residents. Special efforts should be made for adequate publicizing of the clinics.

3.3 COST

Immunization services should be available to all residents at an affordable cost. Provisions should be made to provide service to residents who are unable to pay.

The dollars spent in prevention will pay off in the long run. In addition to preventing the obvious pain and suffering for those children who fall victims of these diseases, there is a greater emphasis being placed on the cost-effectiveness of prevention programs.

In 1971, Massachusetts analyzed the health benefits of its statewide program to innoculate pre-school and school aged children for measles. The total savings were found to be approximately $6.8 million while the cost of the program was 1.3 million. Thus, for every dollar invested in measles vaccination, there was a saving of about $5.5 million.[9]

4.0 GENERAL ANALYSIS

4.1 ALTERNATIVES AND ISSUES

Immunization provides a simple, generally low risk and inexpensive method of eliminating the illness and death associated with those communicable diseases for which vaccines are available. It benefits not only the recipient, but also, indirectly, the entire community because the control of diseases such as polio, tetanus and diphtheria provide ample evidence of the effectiveness of immunization. The fact that cases still occur is a testament to the incomplete application of a potent public health tool.

Montana is one of the last few states to enact a statewide school immunization law. This law should increase the level of immunization for school age children. However, there is a loop-hole in this law which reduces its effectiveness. An "administrative exemption" was incorporated into the rules for implementing the law. It reads as follows:

> "16-2.18 (10) -S18078 ADMINISTRATIVE EXEMPTION If a parent or guardian of a minor seeking enrollment, or the person seeking enrollment, if an adult, fails to submit documentation that he is in full compliance with the immunization requirements of these rules, to establish that he qualifies for conditional enrollment, or to claim a medical, personal or religious exemption within the time period established by the board of trustees pursuant to section 20-5-403 (2), MCA, the school must file an administrative exemption with that person's school record, on a form provided by the department."

With the availability of this Administrative Exemption, many children will fall into an uncertain area regarding immunization levels.

The Department of Health and Environmental Sciences reports that a significant number of Administrative Exemptions have already been submitted to the Department. This is the first year for implementation of the state-wide, school immunization law.

An additional caution might be the fact that parents may view this immunization law as an excuse to postpone immunization until age 4, 5, or just before the child enters school. Since most immunizations should be administered before a child is 18 months old many young children are unprotected against preventable communicable diseases during the very period of life when they are most susceptible. The immunization schedule developed by the American Academy of Pediatrics recommends that children be fully immunized with measles rubella basic series before they are 18-24 months old.

In summary, efforts should be maintained to implement the new statewide school immunization law. The high rate of "administrative exemptions" indicates that consideration should be given to amend the law to increase effectiveness.

Immunization levels must be maintained on a continuous basis and ongoing public education is needed to stress the benefit of prevention.

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6.3

MATERNAL AND CHILD HEALTH CARE SERVICES

GOAL

Maternal and Child Health Care Services should be available, accessible to and cost effective for all Montanans in order to achieve and maintain the health of women and children.

OBJECTIVES:

1. To lower infant and fetal mortality and morbidity rates in the State of Montana.
2. By January, 1983, to complete an assessment and documentation of the state's unmet health needs of women and children.
3. To provide first trimester prenatal care for an increasing number of pregnant women placing special emphasis on the at risk groups, i.e., the pregnant teenager, those pregnant over 35, and the pregnant diabetic, etc.
4. To expand family planning services to reduce the unmet need identified in this component.
5. **Genetic screening and counseling should be available to Montana residents who desire it.**
6. **Deliveries should be performed by licensed or certified attendents in an environment determined to be conducive to healthy birth outcome, yet allowing for family participation when desired.**
7. A system will be established to identify infants and mothers who are at risk.
8. By 1983, every postpartum mother and her infant, not receiving direct services from a primary care provider or identified as being at risk, will receive at least one postnatal home visit.
9. Determine the cost effectiveness of providing well-child clinics.
10. An education program will be established to educate health care providers in the identification and treatment of child abuse and neglect, incest and spouse abuse.

LONG RANGE ACTIONS:

1. **Attention should be given to the prevention of unplanned pregnancies. Efforts should be directed toward the teenage population through the expansion of family planning services with an emphasis on education and accessibility.**
2. **Adolescent pregnancy programs should strive to integrate with educational and social service agencies.**
3. Providers of prenatal education programs should initiate or expand information on the negative effects of alcohol consumption, drug use and smoking during pregnancy.

1.0 BACKGROUND

To make optimal maternal-fetal and perinatal care appropriate to the needs of each patient, available to all and thereby improve the outcome of pregnancy, a comprehensive health and medical care system as well as an effective educational thrust is needed.

1.1 SERVICE DEFINITION

The intent of the maternal and child health care services is the achievement and maintenance of the health of a women and her child during and after pregnancy. If we make the assumption that the course and outcome of pregnancy depends upon the lifetime health experience of the mother, and to a lesser extent the father, then maternal and child health care services encompass a broad spectrum of health services.

Health Education is fundamental in achieving the goals of maternal and child health care services. The process of health education should begin early in childhood and continue throughout life. It should stress the need for *preventive care*, (for example, well child care, immunizations, nutrition, and genetic problems); *early problem detection,* (i.e., regular breast self-examination and periodic screening for cervical cancer); and *special situations needs* (i.e., special problems of pregnancy and the need for early assessment).

Family Planning services assure that individuals of childbearing age are free to determine the number and spacing of their children. Expanded family planning services concern themselves with the general health care, nutritional needs and health education of women.

Prenatal Nutrition is essential for maternal and infant health. Pregnant women have extra needs (i.e., iron, protein, calcium, calories) and may need to be provided with dietary suggestions and/or supplements. Nutritional guidance and services are available from health professionals and service agencies.

Genetic Counseling is essential for parents of a child with a chromosomal abnormality, congenital defect or known genetic abnormality prior to deciding on subsequent pregnancies. Prospective parents with a family history of genetic disorders should also receive genetic counseling. Knowledgeable health professionals can provide this information to their patients and/or make appropriate referrals for genetic service.

Prenatal Care is designed to assure that every expectant mother maintains good health, learns the art of child care, has a normal delivery and bears healthy children.

Interconceptual Care deals with medical and social problems which may affect future pregnancies, child development or future family health.

Well Child Care is designed to provide preventive health care to infants and children in areas of nutrition, immunizations, behavioral and physical development, accident prevention and anticipatory guidance. Early problem detection is also an aspect of well child care.

1.2 SERVICES AND SETTINGS

Maternal and child health services can be provided in a variety of settings. Parents and children can share information regarding health education on family life and parenthood. The school system offers a variety of education to students. Local city-county health departments provide well-child clinics, visit new parents in their homes and teach childbirth classes. Good nutritional practices are stressed through education and supplementary foods are available for those in need through federal programs. Family Planning Services can be offered through Federally subsidized family planning and planned parenthood clinics or provided by a physician in the private sector. Usually prenatal and postpartum care is provided by a physician, but increasingly these services are provided by other legally qualified health practitioners.

In the last 15 years amendments to the Social Security Act have established a number publicly funded maternal and child health programs aimed at providing comprehensive health services to high-risk mothers and children. Since an inordinate proportion of infant and maternal mortality occurs among patients from a background of poverty, suboptimal education, and depressed socio-economic status, segments of the population meeting these critieria have been viewed as a high-risk population. Another high-risk designation has been assigned according to age. Pregnancies among teenagers and those to women 35 years and older are considered high-risk in terms of pregnancy outcome.

The Indian Health Service in the Department of Health and Human Services, has been charged by Congress with the responsibility for assuring health services for American Indians living on reservations.

Infant deaths are defined and tabulated in two ways:

Neonatal mortality is the number of liveborn infants who die under 28 days of age per 1,000 live born infants.

Infant Mortality is the number of liveborn infants who die under 1 year of age per 1,000 live born infants.

Since the first routine recording of infant mortality in the United States in 1915, a steady decline in the rates has been recorded. The decline was minimal between 1915 and 1930 but from 1930 to 1950 it dropped dramatically — almost 90 percent. From 1950 to present the decline has been slight but steady. In 1977, a record low of 14 infant deaths per 1,000 live births was achieved, a seven percent decrease from the previous year.[1]

Montana's infant mortality rate has been comparable to the U.S. rate, except for a greater decline in recent years. (See Table I) In 1979 the Montana rate was 10.7, actually below the national average of 13.0 The neonatal mortality rate (0-28 days) was also below the national average of 8.8. Montana showed a rate of 7.1 (see Table 1)

Although these Montana Statistics might initially be considered encouraging, the situation is not as positive as it appears. The American Academy of Pediatrics conducted a site visit in Montana on February 12-13, 1979. The resulting consultation report pointed out that, relative to the virtually all-white, low-risk nature of the state child-bearing population, there was an unacceptably large number of neonatal deaths. Another problem identified concerned a lack of consensus on what measures would be most effective in achieving this objective. The limitations of data make it difficult to draw conclusions.

TABLE I
Infant and Neonatal Mortality
(Rate/1,000 Live Births)

	Montana		United States	
Year	Under 1 Year	Under 28 Days	Under 1 Year	Under 28 days
1970	21.5	16.0	20.1	15.1
1971	21.6	15.0	19.1	14.2
1972	19.7	14.5	18.5	13.6
1973	19.5	13.6	17.7	13.0
1974	16.5	12.5	16.7	12.3
1975	15.5	10.7	16.1	11.8
1976	16.6	11.7	15.1	10.7
1977	13.8	8.9	14.0	9.9
1978	11.4	7.3	13.6	9.5
1979	10.7	7.1	13.0	8.8

Low Birth Weight Infants

Low birth weight is the greatest single hazard for infants, increasing vulnerability to developmental problems and death. In 1977, 7.1 percent of the births in the United State were low birth weight infants. Montana recorded a rate of 6.7. A low birth weight infant is one weighing 5 pounds 8 ounces or less at birth.

The two principle threats to infant survival and good health are low birth weight and congenital disorders including birth defects.

In a 1979 publication, Healthy People, the Surgeon General reported the following statistics regarding low birth weight infants:

- — Of all infant deaths, two-thirds occur in those weighing less than 5.5 pounds (2,500 grams) at birth.
- — Given no prenatal care, an expectant mother is three times as likely to have a low birth weight child.
- — Smoking slows fetal growth and doubles the chance of low birth weight.
- — Teenage mothers are twice as likely to have low birth weight infants.[2]

Birth defects include congenital physical anomalies, mental retardation, and genetic diseases. Nationally these defects are responsible for one-sixth of all infant deaths. Of those infants surviving, diagnosis and treatment immediately after birth or during the first year of life is crucial for health and well being in later years.

One of the most familiar genetic disorders, Down Syndrome, is associated with the presence of an extra chromosome, and occurs in about one of every 1,000 births. The risk of having a Down Syndrome child increases with maternal age, being 1 in 365 for age 35; 1 in 109 for age 40 and 1 in 32 for those 45 years of age. In Montana 3.8 percent of the infants were born to mothers 35 years of age or older in 1979.

Birth defects can also result from exposure of the fetus to infection or toxic agents during pregnancy, especially during the first three months.

It is estimated that a third of the nation's alcoholics are women. Alcohol induced birth defects are now estimated to occur once for every 100 women. Infants affected by fetal alcohol syndrome are often of low birth weight, mentally retarded and may have behavioral, facial, limb, genital, cardiac and neurological abnormalities.

Cleft palate accounted for nearly one-fifth of the congenital malformations reported. The 1977 incidence of cleft palate (in Montana) is approximately twice that reported for 1978.[3]

Although Child abuse is often considered to be a social/psychological problem, it is, also, a health issue. The exact incidence of child abuse is unknown. Nationally, estimates range from a low of 70,000 cases per year to highs of 4 to 5 million. An often quoted statistic is that 1.6 million cases of child abuse are committed each year, with 2,000 to 5,000 children killed as a result of abuse.[4] Nationally, approximately one million children are maltreated by their parents each year. (Twenty-five percent of those youth will suffer physical impairment.)

There is a growing realization of the increases of child abuse in the state. During a nine month study, (Sept, 1979 — June 1980) the number of children investigated for child abuse and neglect in Montana averaged 300 per month.[5]

1.3 TRENDS

Although the infant mortality rate has continued to steadily decrease in Montana,the number and percentage of out-of-wedlock births continues to rise,increasing from 1,291 (10.1 percent) in 1975 to 1,596 (11.3 percent) in 1979. In 1953 only 1.75 percent of the births were out-of-wedlock.

Mothers of children born out-of-wedlock are markedly younger than married mothers (4.8 years younger in 1979). In 1979, 46.7 of the out-of-wedlock births were delivered by teenage mothers. Of the total births in 1979, 13.2 were teenage deliveries.

A second trend noted was the increase of infants born out of hospitals. For the first time since 1954, more than 1 percent of the babies born in Montana were born out of hospitals. The figure was 1.4 percent in 1979. Flathead County lead all counties with 45 births.[6]

Of those deliveries in hospitals, a third trend was noted, the increase in Caesarian deliveries. Statewide, 10 percent of all births were delivered by Caesarian Section in 1977. In 1978 the percentage rose to 11.1 and in 1979 it was 12.0.

Nationally Caesarian delivery rates doubled between 1968 and 1977, rising from 5 to 12.8 percent of births.[8] This increased maternal morbidity and required longer hospital stays.

2.0 CURRENT SITUATION

2.1 AVAILABILITY

In Montana, Maternal and Infant Health Services are presently being offered by a variety of health care providers including private physicians, city and county public health units, various private family planning agencies, the school system and private agencies.

2.2 ACCESSIBILITY

The Maternal and Child Health Services Bureau, Health Services Division, Montana Department of Health and Environmental Sciences, is responsible for several child health programs: Maternal and Child Health Program Unit, Handicapped Children's Program, Family Planning, Early and Periodic Screening, Diagnosis and Treatment Program, Women, Infant, and Children Supplemental Food Program, Improved Pregnancy Outcome Program and Child Nutrition Program.

Local Health Departments are active providers of Maternal and Child Health Services at the local level. Well-child services, follow-up visits to high-risk mothers and infants, immunization, child abuse prevention and community education are just a few of the many services provided. There are seven organized health departments meeting the needs of approximately 55% of the total population residing primarily in larger population areas. (See Figure 1)

Community Health Nurses play a major role in the delivery of Maternal and Infant Health Services. The following statistics describe the extent of nursing services in the state of Montana.

- 276 nurses are working on the local level in one or more nursing roles involved in the delivery of community health nursing services. Approximately 45% are employed by county governments.
- Nine counties with a total estimated population of 19,000 are without community nursing services of any kind. (See Figure 1)
- Seven Counties (estimated population 45,000) are without generalized community health nursing services but do have some specialized nursing servies such as aging, home health and school. (See Figure 1)
- Six additional counties are only able to support a part-time community health nurse. (See Figure 1)
- Forty-one nurses employed by Boards of Education provide school children with health supervision services in eighteen counties. (See Figure 2)
- In rural Montana, identified as all counties not having organized health departments, it is estimated that one generalized community health nurse serves a population of 6,627 persons.

The Bureau of Nursing, Department of Health and Environmental Sciences provides consultation to school and local community health nurses.

The Indian Health Service (IHS) provides a comprehensive health delivery system to approximately 30,000 Indian people residing on the seven reservations in Montana. Maternal and Child Health Services are offered by this system. In addition to IHS, the Blackfeet reservation has a tribal program to deliver family health services, the Fort Peck Reservation also has an established Developmental Assessment Clinic; the WICONI Program offers outreach and referral services to urban Indian women regarding family planning. Education and counseling are also offered.

A Child Abuse Project exists in Montana. The project is Federally funded and operates through the Montana Department of Social and Rehablitation Services. Twenty-Five child protection teams have been established throughout the state and funding is available for various community efforts.

2.3 COST

Family Planning servies are an important aspect of Maternal and Child Health Services. Although it is difficult to estimate the cost savings of teenage and low income women postponing pregnancy, one national study, covering the period 1970-1975, showed that the Federal Government spent $584 million providing family planning services to low income women. The resulting short range cost savings in health and welfare benefits averaged a minimum of $1.80 for every dollar spent on family planning services. Even more significant is the long-range benefit, dollars saved for every dollar spent.

3.0 FUTURE RESOURCE REQUIREMENTS

3.1 AVAILABILITY

Currently only four counties in Montana are without at least one Maternal and Child Health Care Service provided by the Montana Department of Health and Environmental Sciences. These counties are: Daniels, Sheridan, Treasure, and Carter. (See Figure 3) The Maternal and Child Health Services Bureau plans to conduct a needs assessment to determine whether services should be expanded to these eastern counties.

Those counties with major population centers appear to be adequately covered with fourteen counties receiving the services of five or more programs. (See Figure 3)

3.2 ACCESSIBILITY

It is important to note that there are Maternal and Child Health Care services are offered by established city-county health departments in seven communities and by community health nurses in rural areas.

Nine counties do not have county public health nurses, they are: Liberty, Prairie, Carter, Petroleum, Judith Basin, Wheatland, Meagher, Golden Valley, and Sweet Grass. (An additional seven have only specialized nursing services) (See Figure 1) The absence of nursing services does not necessarily indicate need. Most of these counties have outreach WIC services. However, if a need is documented for nursing or other Maternal and Child Health Services, every effort should be made to provide the care. Figures 1, 2, and 3 provide an overview of existing services in Montana.

The Improved Pregnancy Project will continue to gather a more detailed data base. Considering the data, high priority for expanded Maternal and Child Health Services should be given to those counties where many or all of the following situations exist:

- — High number of women of childbearing age (15-44);
- — High numbers of low income women in childbearing age group;
- — High percentage of women not seeking early prenatal care;
- — Many low birth weight infants born in county;
- — High percentage of teenage pregnancies;
- — High percentage of illegitimate births;
- — High incidence of congenital anomalies in infants;
- — High infant mortality rate

Regarding the need for family services, the Bureau of Maternal and Child Health Services has determined that there are an estimated 51,942 women in need of subsidized family planning services in Montana.

Approximately 23% of these women (or 12,158) are being served by the 15 family planning clinics currently operating throughout the state. Roughly estimated, an additional 18,180 women in need (35%) are being provided family planning services by private physicians. This leaves some 21,604 Montana women needing family planning services: [9]

3.3 COST

Maternal and Child Health Services should be available to all Montana residents at an affordable cost. No one should be denied or restricted to certain services because of inability to pay. Fees (if charged) should be scaled to the income of patients.

4.0 GENERAL ANALYSIS

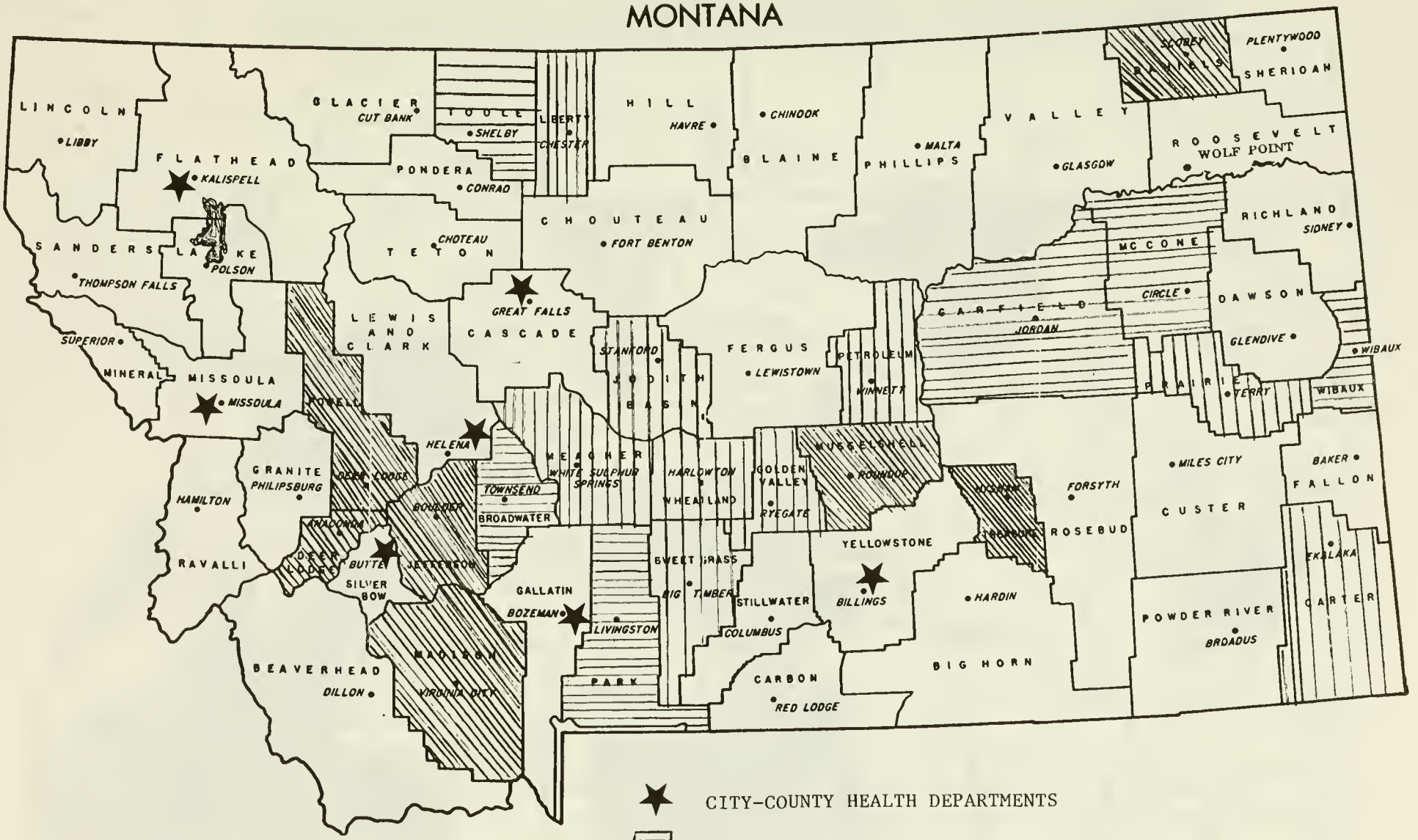
4.1 ALTERNATIVES AND ISSUES

In 1979, 13.2 percent of the total births were delivered by teenage mothers, a rate significant enough to warrant attention. Teenage women, for a variety of reasons, experience more complications during pregnancy and more premature deliveries. As a result they run a greater risk of damaging their health as well as that of their child. To help this population at risk, and reduce the number of unplanned teenage pregnancies, maternal and child programs should target activities to reach this age group. In addition, education programs in the schools and community should be carefully planned and upgraded.

Increased attention is also needed in the area of prenatal care. Although these services are widely available, many pregnant women fail to seek early perinatal care. Two direct service programs have been instituted to partially provide this needed care. They are the Women, Infants, and Children (WIC) Program and the Maternal and Infant Care Program (M & I). Both programs should be maintained at present levels and expanded when need is evident.

If the number of out-of-hospital births continues to increase in Montana attention needs to be directed toward the issue of alternatives equal in safety to conventional care. Two alternatives which might be considered are the utilization of certified nurse-midwives or the development of professionally staffed alternative birthing centers.

MONTANA



★ CITY-COUNTY HEALTH DEPARTMENTS

PART-TIME PUBLIC HEALTH NURSES

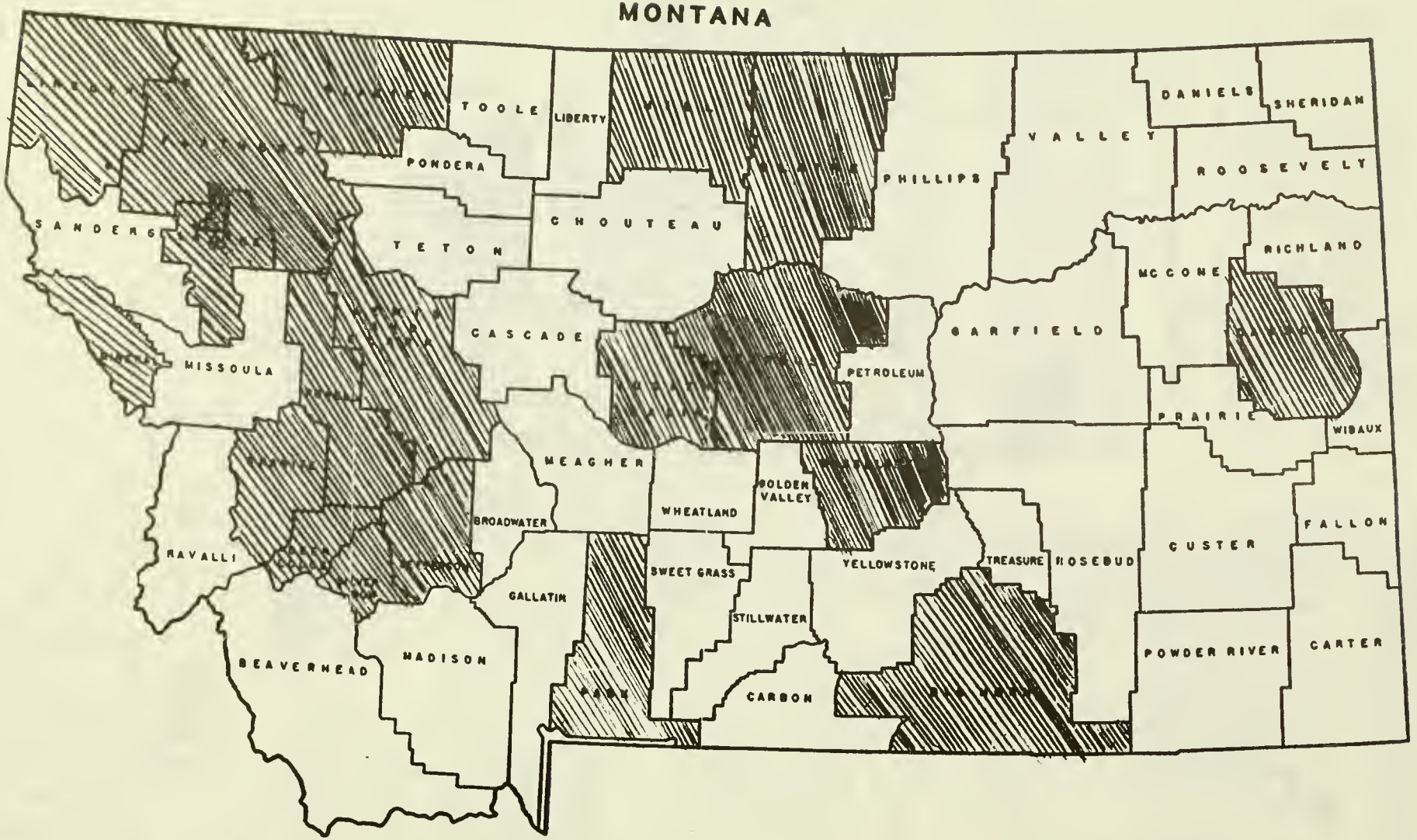
SPECIALIZED NURSING SERVICES ONLY (Ex. SCHOOL, HOME HEALTH, ETC

NO COMMUNITY HEALTH NURSE

COMMUNITY HEALTH NURSE FULL-TIME

FIGURE 1

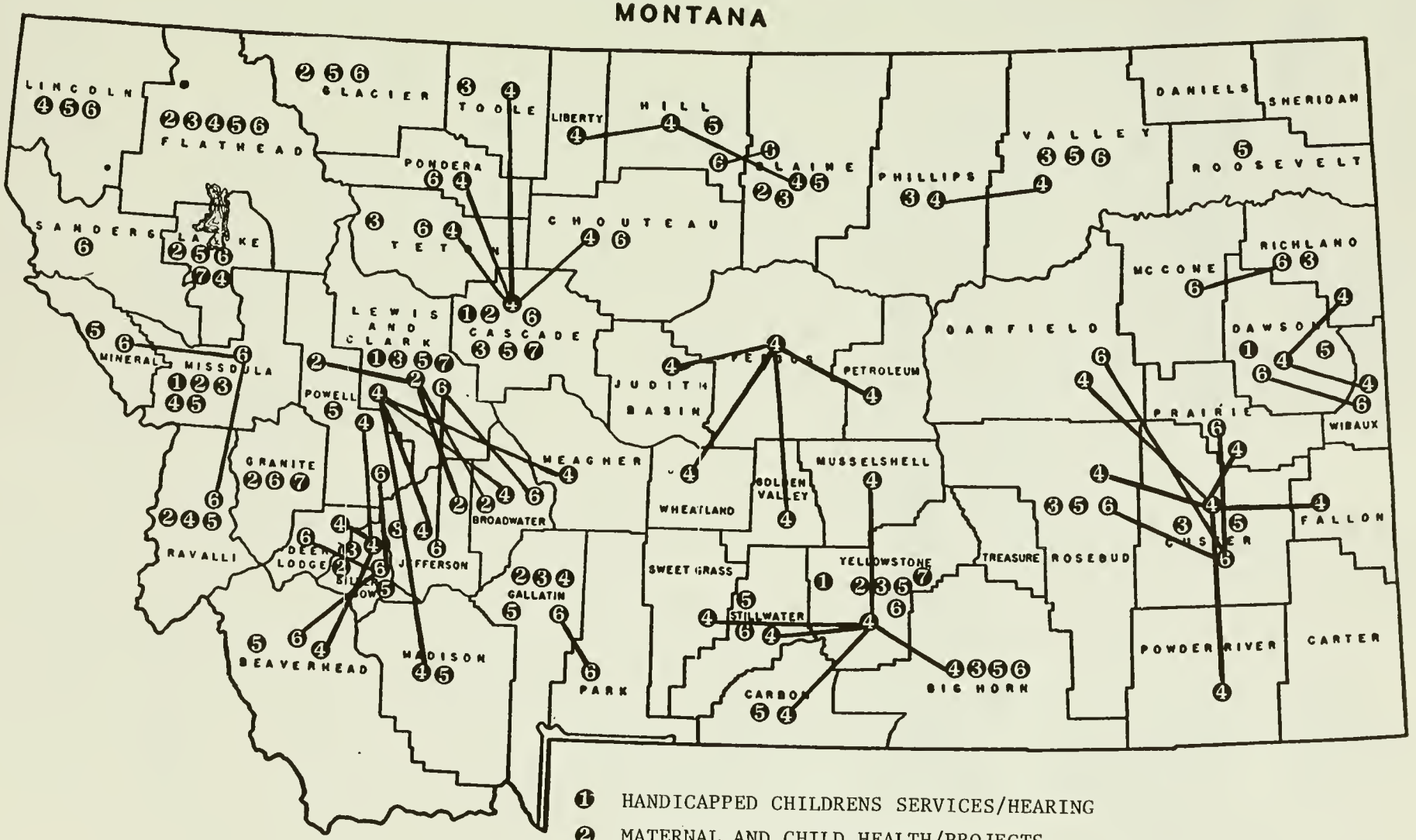
February, 1980



COUNTIES WITH SCHOOL NURSES EMPLOYED BY BOARDS OF EDUCATION

FIGURE 2
FEBRUARY, 1980

HEALTH SERVICES DIVISION - CONTRACTS/GRANTS TO COUNTIES



1. HANDICAPPED CHILDRENS SERVICES/HEARING
2. MATERNAL AND CHILD HEALTH/PROJECTS
3. EARLY PERIODIC SCREENING, DIAGNOSIS, AND TREATMENT
4. FAMILY PLANNING
5. NUTRITION
6. WIC CONTRACTS/FOOD
7. PREVENTIVE HEALTH

FIGURE 3

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VII HEALTH STATUS CHARACTERISTICS

CHAPTER 7
HEALTH STATUS CHARACTERISTICS

The ultimate goal of the Montana Health Systems Agency is to improve the health of the residents being served. The Montana Health Systems Plan is supposed to take a population-based approach to identify health problems and advocate changes in the delivery system to alleviate these problems. One method of doing this is by selecting an indicator of health status, identifying potential target areas and surveying the different types of interventions which might reduce the problem.

Theoretically, by implementing different programs and strategies, the magnitude of the problem (as suggested by the health status indicator) should be reduced. Practically, very few programs actually show a significant and direct reduction in disease. In fact, many studies have implied that the more available the health services, the poorer the population's health status. The exceptions are such preventive measures as immunization and fluoridation programs, where positive impacts have been documented many times.

Many reasons have been suggested for the inability to document payoffs for a given intervention and disease. The primary reason appears to be that it is beyond the current state of the art. First, even authorities are hard pressed to find a universally accepted definition of health. Second, the factors determining one's health status are so subtle and interrelated that altering any one of them does not necessarily show up as a change in the health statistic being examined. Finally, only the crudest of measures of health status (mortality rates) are currently available for analysis. Even these have limited use since age-adjusted statistics are not currently available.

Nevertheless, examining and monitoring selected health status indicators does appear to have some merit. In particular, it appears that such an endeavor could help to identify promising preventive and health education programs. This is especially true when tempered with community values as to what is important.

In this chapter three health problems are addressed, some possible interventions are discussed and programs to be emphasized and encouraged by the Montana Health Systems Agency are identified. The three health problems are:

- Heart Disease
- Cancer
- Alcoholism

The goals and recommendations found in the following components are intended to be statements of the MHSA's future aspirations for types of programs to be fostered. If Area Health Services Development Funds become available, these goals and recommended actions can serve as a basis for the allocation of these monies. In some cases, they can also be used to guide the review of federal funds.

7.1

HEART DISEASE

GOAL:

Reduce the crude mortality rate from heart disease in Montana by 10 percent (to 260.3) deaths per 100,000 persons by 1985. Primary emphasis is to be placed upon health education, screening, and early intervention activities.

RECOMMENDED ACTIONS

General Suggestions

Develop systems of primary care through prevention, education and screening programs.

Health Education

Encourage and support intensive programs stressing medical care as only a segment of total health care. This is to be accomplished in part by increasing the use of nurses to work with those at risk.

Exercise

Support the development of programs promoting low cost exercise facilities and information regarding appropriate physical activity.

Nutrition

Promote more intense nutritional programs through public education and encourage public schools to eliminate "junk foods" from their facilities.

Smoking

Advocate increased emphases on "stop smoking" clinics and anti-smoking programs.

General Screening and Blood Pressure Clinics

Support general screening concepts to identify high risk individuals through annual physical examinations, media education and convenient, visible locations for blood pressure testing. One of the primary groups for these programs should be senior citizens.

CPR Training

Support CPR training of the lay public in school systems, by the Red Cross, Heart Association, and EMS personnel.

1.0 HEALTH STATUS INDICATORS

There were 2,305 deaths in Montana in 1979 caused by diseases of the heart. The prominent cause was ischemic heart disease, accounting for 57.4 percent of these deaths. Crude death rates from heart disease appear to be going down (Figure 1), and the same pattern can be observed nation-wide. During the period between 1972 and 1976, the crude mortality rate in Montana from heart disease decreased from 319 per 100,000 population to 289.2 - a drop of 9.3 percent.

2.0 PRIMARY PREVENTION STRATEGIES

2.1 RHEUMATIC HEART DISEASE

One easily prevented form of heart disease is rheumatic heart disease. If strep-throat infections are left untreated, they can lead to rheumatic fever and, consequently, damage the heart (rheumatic heart disease). Although the state requires all cases of rheumatic fever to be reported, it appears that many go unreported. There were, for example, two cases of rheumatic fever reported in 1977, but 60 deaths were attributed to rheumatic heart disease.

By using penicillin to treat strep-throat and rheumatic fever, over 90 percent of the patients will not develop rheumatic heart disease, making this strategy one of the most cost-effective prevention strategies for heart disease available. Both the state health department and the Montana Heart Association have penicillin prophylaxis programs for rheumatic fever patients. The state is currently examining its program to see if it should be continued.

2.2 HEART ATTACK

Six risk factors in middle-aged men without a history of heart attack seem to enhance the chance of dying from coronary heart disease.

These are:

- hypercholesterolemia (high serum cholesterol)
- smoking
- hypertension
- lack of vigorous physical activity
- familial or genetic factors
- psychological factors (e.g., Type A personality)

There is considerable disagreement about the relative contribution of these six risk factors. The evidence for elevated cholesterol, smoking and hypertension is, however, almost universally accepted.

Although these characteristics increase the risk of coronary heart disease, they are not causative. That is, some people with these conditions and habits do not have heart disease and others without them get heart disease. However, the chances are higher for developing heart disease if one possesses one or more of these risk factors.

One epidemiological study estimated that one-third of 25-year-old males and one-half of 45-year-old males who have high cholesterol levels, smoke and have high blood pressure will develop coronary heart disease in 20 years. On the other hand, another study concluded that a community-wide intervention program aimed at modifying these three risk factors could expect to reduce the overall incidence of coronary artery disease by no more than 10 percent with 50 percent participation. There is no evidence that programs aimed at the other risk factors in the general population would have any impact on the incidence or prevalence of coronary artery disease.

NOTE: Numbers indicate total number of persons whose death was attributed to the specific condition.

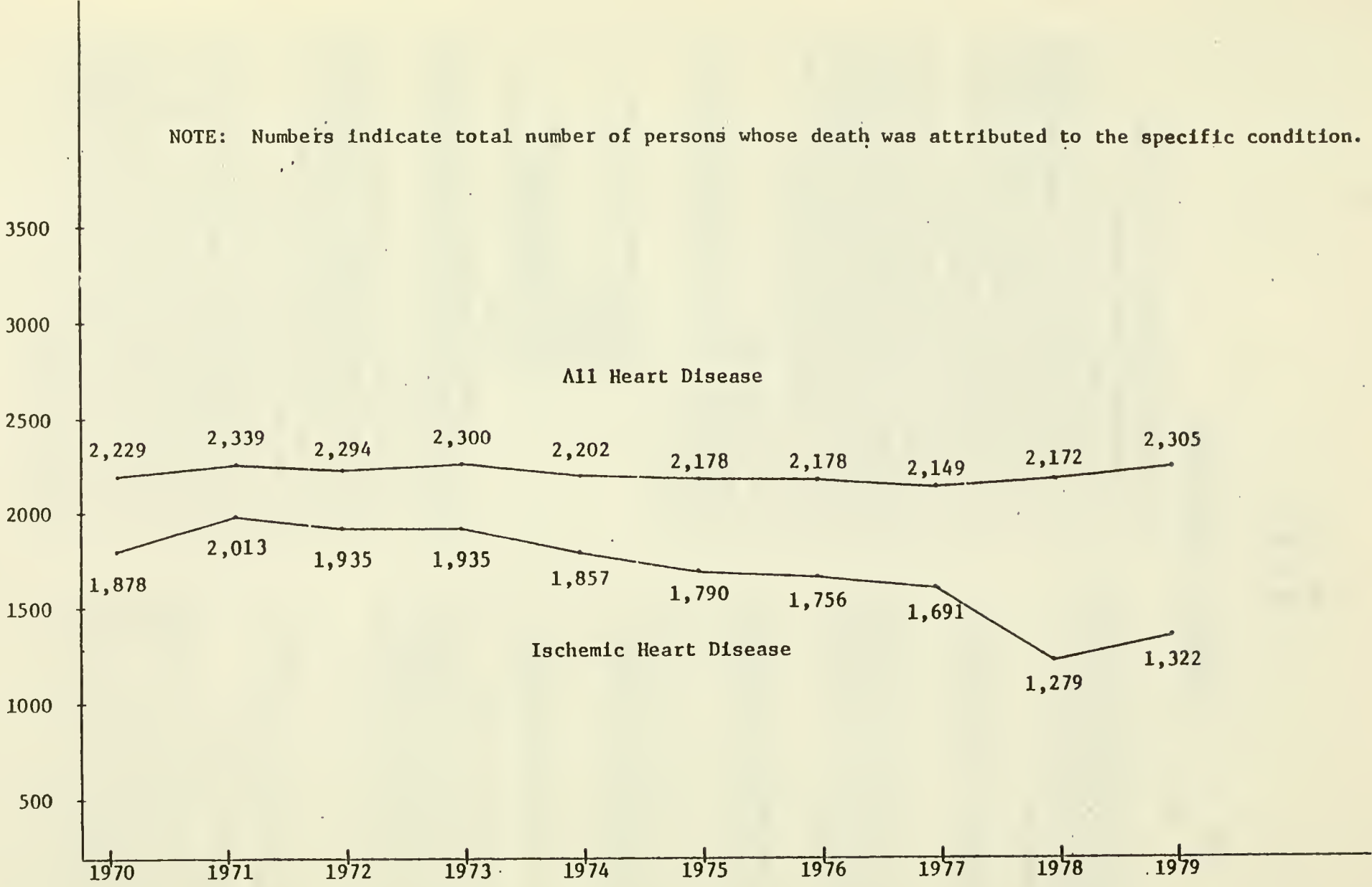


Figure I-Crude annual death rates in Montana due to heart disease and Heart Attack (1970-1979)

Subarea and County	* Crude Death Rate for Ischemic Heart Disease (1972-1976)	Crude Death Rate for Other Forms of Heart Disease (1972-1976)	** Average Number of Deaths from All Forms of Heart Disease (1972-1976)	Average Number of Deaths from All forms of Heart Disease 1979
Northwestern				
Lincoln	140.0	111.2	43.8	46
Flathead	154.6	170.1	145.6	156
Sanders	191.4	168.8	27.0	19
Lake	198.1	193.4	66.4	61
Mineral	40.5	138.7	7.6	13
Ravalli	192.1	223.9	411.2	76
Missoula	111.8	114.3	148.2	149
North Central				
Glacier	124.6	126.3	28.8	35
Toole	239.9	184.5	24.0	12
Pondera	156.2	125.0	20.6	14
Teton	186.9	211.8	22.8	18
Cascade	92.5	137.6	192.2	255
Chouteau	166.7	230.8	26.0	25
Hill	139.5	150.7	52.6	69
Blaine	80.5	336.2	30.4	16
Liberty	225.8	129.0	11.2	5
Southwestern				
Beaverhead	134.1	151.2	23.0	18
Madison	95.1	130.3	10.0	18
Gallatin	96.0	108.3	77.0	83
Lewis and Clark	92.6	187.4	105.6	108
Broadwater	180.6	194.4	9.8	9
Jefferson	94.6	88.8	11.4	12
Meagher	100.9	266.1	10.6	7
Silver Bow	229.5	186.2	188.4	197
Deer Lodge	230.7	141.3	57.6	66
Powell	202.2	172.1	29.0	26
Granite	149.3	201.5	7.6	13
Park	197.4	250.0	54.4	50
South Central				
Fergus	125.0	276.2	57.8	46
Petroleum	30.3	121.2	1.2	2
Judith Basin	111.1	222.2	46.0	9
Wheatland	147.5	163.9	8.2	10
Golden Valley	127.7	234.0	2.8	7
Musselshell	330.2	111.6	20.8	24
Sweet Grass	259.7	97.4	11.2	11
Stillwater	232.6	127.9	18.6	17
Carbon	170.4	243.1	33.8	31
Big Horn	115.2	111.5	23.0	22
Yellowstone	93.3	134.4	211.3	243
Eastern				
Valley	108.2	146.3	34.2	31
Daniels	160.3	217.9	13.0	8
Sheridan	197.0	200.7	23.4	12
Roosevelt	188.0	172.5	39.8	38
McCone	175.2	197.1	13.6	9
Garfield	93.0	232.6	6.0	4
Richland	206.8	128.5	35.2	26
Dawson	118.6	149.6	28.0	43
Wibaux	150.7	232.9	5.2	6
Rosebud	133.9	76.2	16.0	16
Treasure	131.1	114.8	3.2	3
Powder River	139.1	156.5	6.6	6
Custer	202.6	236.6	54.0	58
Prairie	193.5	279.6	9.4	11
Philips	177.1	262.0	22.4	17
Fallon	137.8	107.1	9.4	8
Carter	130.4	282.6	8.0	8

TABLE 1 - Selected Indicators of Heart Disease in Montana

Source: Unpublished data from the Bureau of Records and Statistics and estimates from the Department of Community Affairs.

* Crude Death Rate refers to unclassified rates by age, sex, race etc., per 1,000 population.

** Average number of deaths per 1,000 population.

The Inter-Society Commission for Heart Disease Resources has made some estimates of the maximum potential reduction in heart disease mortality to be realized if some given goal levels were to be achieved. These estimates are shown in Table 2.

Each of these strategies is particularly amenable to health education programs. However, in the past, such programs have had poor compliance ratings. Each of these efforts involve behavior changes which must be followed over a lifetime. Thus, there is a serious question that the changes listed in Table 2 are attainable through educational efforts.

Change	Target Population	Maximum Reduction in Heart Disease Mortality
10% reduction in serum cholesterol	U.S. population	24
Cessation of smoking in 30%	U.S. middle-aged white males who smoke	10
Bring blood pressure under control in 50%	U.S. middle-aged white, hypertensive males	7

TABLE 2

Potential Impact on Heart Disease Mortality of Three Primary Prevention Intervention Strategies.

Source: Inter-Society Commission for Heart Disease Resources.

2.2.1 NUTRITIONAL PROGRAMS

In Montana, there apparently has been no general public program aimed at high fat diets, high sodium diets or dangers of excessive weight. The Preventive Health Bureau, of the Department of Health and Evironmental Sciences, has held nutritional conferences in which nutrition has been addressed. These conferences are held on a request only basis.

2.2.2 ANTI-SMOKING PROGRAMS

The state of Montana levies a $.12/pack tax on cigarettes. Estimates of the amount of revenue generated from cigarette taxation for the last five years are presented in Table 3.

Anti-smoking education efforts are currently offered in Montana by the Montana Division of the American Cancer Socie-

Fiscal Year	Estimated Number of Cartons Sold	Total Tax Revenue Generated
1975	9,090,402	$10,581,247
1976	9,336.473	$10,867,684
1977	9,565,980	$11,134,814
1978	9,681,706	$11,269,506
1979	9,586,972	$11,159,240

TABLE 3

Estimated Number of Cigarette Cartons Sold in Montana and Tax Revenue Generated (1975-1979).

Source: Unpublished Data from the Miscellaneous Tax Division, Dept. of Revenue, State of Montana.

ty, the Montana Lung Association, and the Montana Heart Association.

Seventh Day Adventist Churches appear to be the most active group in sponsoring "Stop Smoking" Clinics. The number of participants varies in relation to the size of the community in which the program is held. It is estimated that the following communties have these average participating rates:

Missoula	200-500 participants
Helena	35-50 participants
Bridger, Custer, Ovando	20-30 participants

3.0 POSSIBLE SCREENING STRATEGIES

One screening strategy is a health education program aimed at the public on the early signs of a heart attack. These symptoms are:

- — Uncomfortable pressure, fullness, squeezing, or pain in the center of the chest for more than two minutes.
- — Pain spreading to the shoulders, neck or arms.
- — Severe pain, dizziness,fainting, nausea, or shortness of breath.

It is estimated that seven percent of the deaths from heart attacks could be prevented if victims knew the early warning signs and received care within two hours.

Screening programs to identify children and adults with high cholesterol levels are not cost effective and cannot be adopted as a general public health measure. The same appears to be true for mass screening with electrocardiograms (ECGs).

4.0 EARLY INTERVENTION AFTER THE ATTACK

Emergency Medical Services (EMS) are found in many communities and respond to many types of emergencies, including heart attacks. EMS systems are clearly beneficial, cost effective, and life saving.

The Inter-Society Commission for Heart Disease Resources has suggested that improvement of the present ambulance system in the United States to meet the standards of an all-purpose ambulance is likely to be the most practical approach in the future for most communities.

The following principles for emergency transportation operation were recommended by the Inter-Society Commission:

(1) The primary effort in emergency care should be early stabilization of the patient.
(2) The transport system should be operated with the full knowledge and cooperation of community physicians.
(3) The community should be fully aware of the purpose and function of the system, and this information should be included in public and professional education programs in heart disease.
(4) The method by which patients and physicians activate the emergency transport system should be simple, effective, and tailored to meet local circumstances.
(5) The emergency transport system should encompass civic emergency programs operated by the police, fire department, or rescue squads in the community.
(6) Transportation should be coordinated with the facility to receive the patient.
(7) A program for ambulance personnel to develop and maintain a high level of skill in the management of cardiac emergencies should be an integral part of the system.

In addition, two special programs may be developed in certain communities to reduce the response time after a heart attack has occurred.

First, mobile coronary care units designed to respond only to suspected cardiac emergencies might be established. To be effective, this strategy appears to be limited to areas with large population concentrations. Studies have shown that special ambulance systems and mobile coronary care units have succeeded in resuscitating between 12 and 65 percent of the heart attack victims who were found in ventricular fibrillation, but one-half of these will be dead within two years.

The second potential program to reduce the response time to treat heart attack victims involves training the general public in cardiopulmonary resuscitation (CPR).

Preliminary data from King County, Washington (Seattle), indicates the benefits of bystander-initiated CPR are shown to have similar ratios of resuscitation and survival as paramedics in an advanced life support service. It is emphasized, however, that for CPR training to be effective, the necessary backup support (Emergency Medical Systems) and hospital (Coronary Care Units) must be in place.

Two communities, Billings and Missoula, have full time staff to give CPR training. Other communities have relied upon volunteer instructors. The state EMS Bureau is encouraging CPR training by giving continuing education and recertification credits to EMT instructors in CPR.

5.0 INPATIENT SERVICES

Two concepts of inpatient care have been developed in recent years to improve the outcome of coronary heart disease patients; the development of coronary care units (CCUs) and the use of open-heart surgery. Both are addressed in service components of the plan.

Four facilities have developed cardiac catheterization laboratories (Missoula, Billings (2) and Great Falls) and three currently have open-heart surgery capability (Missoula, Billings, and Great Falls).

6.0 REHABILITATION AND FOLLOW-UP

Many efforts have been made, primarily by the medical profession, to alter the behavior of those who have had a heart attack. These efforts concentrate primarily on getting heart attack victims to reduce serum cholesterol levels, stop smoking, control hypertension and increase their level of physical activities. It has been suggested that these late interventions have contributed significantly to reduction of heart disease mortality rates.

It has been estimated that if all smokers who suffered a heart attack stopped smoking, a 15 percent reduction in coronary deaths could be possible. If hypertension were controlled, a maximum reduction of six percent in the mortality rate could be achieved. The potential impact of altering the diets and increasing the physical activity of heart attack survivors is less conclusive.

7.2
CANCER

GOAL

Reduce the mortality rate in Montana from cancer by 10 percent.

RECOMMENDED ACTIONS:

1. Promote treatment within the state of Montana to eliminate out-of-state travel, easing treatment costs.
2. Support plans to involve civic organizations in cancer education programs.
3. Advocate the development of informational systems to make cancer support services more accessible.
4. Advocate periodic pap smears for women 18 years of age and older for earlier diagnosis of uterine cancer.
5. Through the American Cancer Society, encourage more women to engage in breast self-examination.
6. Through civic and charity organizations, encourage more participation in "Stop Smoking" Clinics.
7. Encourage use of existing Hospice programs for terminal cancer patients through information and education.

1.0 HEALTH STATUS INDICATORS

Cancer encompasses a large number of diseases characterized by the uncontrolled growth and spread of abnormal cells. In most cases, thses cells build up into tumors which in turn compress, invade, and destroy normal tissues. The American Cancer Society estimates that of every six people who get cancer, two will be saved and four will die. Of the four who will die, one might have been saved had earlier diagnosis and treatment been implemented. The chance that an individual under 30 years of age will develop cancer during some point in his or her life is appoximately 25 percent.[1]

The economic cost of cancer in the United States is estimated to exceed $30 billion annually. The greatest financial burden for cancer care involves hospitalization. Based on data from Consumer Reports, a typical hospital stay for a cancer patient averaged 15 days and cost about $3,000. Direct costs alone for cancer care, such as hospital, nursing home care, physician fees, nurse services, drugs and other treatment amount to $3 billion annually.[2]

This component will focus on six of the most common types of cancer in Montana. They are:

— Lung Cancer
— Colon Cancer
— Breast Cancer
— Uterine Cancer
— Prostate Cancer
— Skin Cancer

The first five of these are leading causes of cancer mortality in Montana. The sixth, skin cancer, is not normally a death-threatening disease, but appears to have a high incidence in the state.

	Breast	Colon-Rectum	Lung	Uterus (invasive)	Prostate
Estimated New Cases	300	350	300	150	250
Estimated deaths	100	175	300	30	75

TABLE 1
Estimated New Cancer Cases and Deaths in Montana for 1978, by Site Category

Source: 1978 Cancer Facts and Figures, American Cancer Society

Montana has recently instigated a tumor registry from which local estimates of the incidences of cancers can be made. Until completed, estimates of the number of new cases of cancer annually are based on estimates from the American Cancer Society. These estimates are shown in Table 1.

Although the cancer mortality rate in Montana is somewhat less than the national average, cancer is the second leading cause of death in Montana, accounting for nearly 1,233 deaths in 1978. It is primarily a disease of middle-aged and elderly individuals. In Montana, the median age of patients at diagnosis for the five types being considered is:

— Lung	63.7 years
— Colon	69.1 years
— Breast	67.5 years
— Cervical	38.0 years
— Prostate	73.9 years

2.0 PRIMARY PREVENTION STRATEGIES

In Montana, the greatest opportunity for saving lives through prevention or early diagnosis and treatment are programs targeted to the at-risk populations and directed to the site categories accounting for the greatest mortality. Based on epidemiological studies, certain risk factors have been identified which increase the likelihood of falling victim to some type of cancer. These risk factors currently include age, sex, race, occupation, family history, and personal habits. The populations at risk for the major cancer sites are discussed below. These groups may serve as potential target populations for cancer education programs.

— At least 80 percent of *lung cancer* is caused by cigarette smoking. Risk increases if a close relative has had lung cancer. There is also a substantial increase in the risk of developing

cancer in the larynx, oral cavity, and bladder among cigarette smokers. For women, the majority of lung cancers occur among those 55 to 64 years of age. Women who have smoked one or more packs of cigarettes a day for at least 20 years, and who began smoking before the age of 20, are five times more apt to die from lung cancer than women who have never smoked. Similarly, men who have smoked at least two packs of cigarettes per day for 20 years and who started smoking before age 15, are 15 to 20 times more apt to die from lung cancer than men who have never smoked. Most lung cancers among men occur in the 60 to 69 year old age group.

— *Cancer of the colon and rectum* and its possible relationship to present day dietary practices is currently being studied, especially the role of highly processed foods in relation to slower transit time and increased exposure of the intestinal tract to the carcinogens.

— *Breast cancer* occurs mainly in women over 35 years of age, with the risk of developing breast cancer increasing with age. Breast cancer is more prevalent among women who have never had a child or who bore the first child after the age of 25 years. Risk also increases among women whose mothers or sisters have had breast cancer or women who experienced early menarche and/or late menopause. Finally, cancer in one breast increases the risk for the other breast.

— *Cancer of the prostate gland* is rare among men under 50 years of age. This cancer does have a familial tendency in that it generally occurs among family members with greater frequency than in non-family members.

— *Cancer of the uterus* (cervical) occurs most often in women 45 to 69 years of age. Social factors play a significant role with this type of cancer, such as low income background, past history of sexual intercourse, and lack of regular physical checkups or Pap tests.

— The risk of developing *skin cancer* is highest for those engaged in farming and other outdoor occupations exposing the individual to frequent sun contact. This cancer has also been linked to persons with frequent contact with coal, tar, pitch or creosote.

By definition, primary prevention indicates eliminating exposure (or increasing resistance) to prevent the disease from getting started. Of the variety of factors found associated with cancer, tobacco smoking is the most amenable to influence, and the most clearly indicated as a carcinogen.

Occupational exposure can also be controlled, once identified. The number of cases involved with each cancer causing agent, however, is generally small and limited to (often intense) occupational exposure. Nevertheless, the establishment of employee health surveillance programs would help detect possible health hazards.

An additional preventive strategy emerging today is the role of nutrition in cancer prevention. A Senate subcommittee on nutrition estimates that 40 percent of the cancers in men and 60 percent of the cancers in women are nutritionally related.[3] However, many authorities feel that the role of nutrition in the induction of cancers is highly speculative and unconfirmed, in spite of the political attention being paid to it.

Finally, although cancer occurs mainly in adults, proper health habits and familiarity with cancer should begin early in life. The American Cancer Society has developed a program directed to children in kindergarten and on up to the third grade entitled "Early Start To Good Health." Most educational programs, which are offered free of charge by the American Cancer Society, involve three components; a film, a medical or lay speaker, and a discussion session designed to involve participants and help promote positive health habits.

In summary, anti-smoking programs and selected, specific occupational hazard prevention programs are the only primary prevention strategies available. The effectiveness and efficiency of general, untargeted, and non-specific health education remains unproven, as contrasted to directed health education (stop-smoking clinics) or public information (increased awareness).

CANCER'S 7 WARNING SIGNALS
Change in bowel or bladder habits
A sore that does not heal
Unusual bleeding or discharge
Thickening or lump in breast or elsewhere
Indigestion or difficulty in swallowing
Obvious change in wart or mole
Nagging cough or hoarseness

THE 7 SAFEGUARDS URGED BY ACS
Lung: Reduction and ultimate elimination of cigarette smoking
Colon-Rectum: Proctoscopic exam as route in regular checkup for those over 40.
Breast: Self-examination as monthly female practice.
Uterus: Pap test for all adult and high-risk women.
Skin: Avoidance of excessive sun.
Oral: Wider Practice of early detection measures.
Basic: Regular physical examination for all adults.

3.0 POSSIBLE SCREENING STRATEGIES

The objective of a cancer screening program is to detect cancer before it has spread, so that it can be treated promptly by surgery, radiation, chemotherapy, or a combination of these methods. Most cancer detection techniques are too expensive to use in a mass screening program for the general public.

Screening programs for cancers have had demonstrable impact only for two sites — cervical cancer (Pap Smear) and breast cancer in women (breast self-examination).

Uterine cancer could be substantially reduced as a cause of death if every adult woman had a Pap test with her regular health checkup, and if every woman over 35 years old would report any abnormal bleeding to her physician. The Pap test is also an effective method to detect cervical cancer. This procedure allows for diagnosis before any symptoms appear, thus enabling treatment to be almost 100 percent successful. The American Cancer Society recommends a pelvic examination as well as a Pap smear for women at menopause for the detection of endometrial cancer.

Breast self-examination can aid in the detection of breast cancer during the early stage of development. More than 90 percent of all breast cancers are discovered by the women themselves. However, a 1972 survey sponsored by the American Cancer Society concluded that 75 percent of the adult female population have done breast self-examination at least once, but only 24 percent were doing it on a monthly basis.

Recently, the American Cancer Society and the National Cancer Institute jointly funded 27 Breast Cancer Detection Demonstration Projects across the nation in order to demonstrate the value of xeromammography and thermography (recording heat patterns of the breast) in finding early breast cancers.

This, however, was not shown to be cost effective for a mass screening effort of the general public. In addition, questions were raised about the risks of inducing cancer from radiation exposure. Consequently, the American Cancer Society is suggesting that mammograms be routinely done on women under 50 only when they have had a previous history of breast cancer; have had a family history (i.e., mother and/or sisters) of breast cancer, or when breast cancer is suspected. At the same time, this question has stimulated research into developing low-dose mammography units.

Screening for colorectal cancer by tests for occult blood in the stool is currently a major project of the American Cancer Society. There is insufficient data to determine, at this time, the effectiveness of efficiency of such screening.

A 1977 Gallup survey indicated that about 58 percent of the people over 40 would be willing to self-administer the occult blood test if they were shown how. About 800 people from three counties in Montana (Lincoln, Garfield and Ravalli) last year participated in a pilot program investigating the applicability of this test to mass screening.

The most efficient strategy for screening for cancer (and other diseases) still is the doctor's office. Even though the "routine physical exam" or "check-up" has a low yield, many tests and evaluations can be performed in one place usually during one visit.

4.0 INTERVENTION AND MEDICAL MANAGEMENT

Cancer treatment today consists of combined therapies, including surgery, radiation therapy and chemotherapy. Modern surgery yields better results with less radical operations than in the past; radiation therapy has fewer side effects and chemotherapy attacks some advanced cancers and prevents tumors from recurring in many cases.

The therapy of cancer is necessarily multi-disciplinary — surgery, radiotherapy, chemotherapy, rehabilitation, and combinations of these therapies. Stronger emphasis needs to be placed on inter-center cooperation, on referral patterns from primary physicians to Montana centers, to out-of-state specialty centers and back.

5.0 REHABILITATION

Patient support services are frequently available through local programs, as well as through other programs associated with the Montana Division, American Cancer Society. The counseling and support from other patients who have undergone a similar surgery or experience (mastectomy, laryngectomy, ostomy) is well utilized in many communities.

The basic service program offered by the American Cancer Society (ACS) includes: 1) information and counseling services not only on ACS services, but also on community health services and other resources available to the cancer patient and his or her family; 2) equipment loans, such as wheelchairs and sick room supplies; 3) surgical dressings prepared by volunteers; and 4) transportation to and from the doctor's office, clinic, or hospital for treatment.

In addition, the American Cancer Society sponsors the Reach to Recovery Program. This program uses former mastectomy patients as volunteers to counsel, teach and assist patients having a recent mastectomy. Currently-trained Reach to Recovery Volunteers are located in Ravalli, Missoula, Flathead, Lewis and Clark, Silver Bow, Cascade, Fergus, Yellowstone, Gallatin, Custer, Dawson, Roosevelt, Park, and Hill Counties.

Finally, many patients participate in specialized self-help groups. For example, ostomy clubs are presently located in Billings, Butte, Missoula, Great Falls, and Helena.

6.0 CARE FOR THE TERMINALLY ILL

Since 1970 a movement has been growing to provide the dying patient and his family with special services. These include comfortable surroundings, contact with family and friends, freedom from pain and reasonable health care costs. Such services are embodied in the "hospice" concept.

A hospice is defined as a medically directed, nurse coordinated program providing a continuum of home and inpatient care for the terminally ill patient and his family. Services provided can be categorized into two groups. The first is *palliative care*, the medical relief of pain and easing of symptoms without using artificial means to prolong life. The second is *support care*, help for the terminally ill and his family to adjust to death. Individual services may range from the most highly skilled medical care to homemaker services.

The West-Mont Home Health Program (Helena) was the first agency in Montana to develop a hospice program in 1979. Most of the care is home-based and is highly dependent upon friends, neighbors and volunteers. The West-Mont program has no inpatient capacity. Seven additional hospice programs now serve the State of Montana.

REFERENCES

1. 1979 Cancer Facts and Figures, American Cancer Society, p.3
2. Ibid, p. 31.
3. Cancer Research Faces 'Crisis of Credibility,' Missoulian, Tuesday, June 13, 1978, p. 2.
4. 1978 Cancer Facts and Figures, American Cancer Society, p.16.
5. Ibid, p. 16.
6. Ibid, p. 17.
7. Ibid, p. 23.

7.3
ALCOHOLISM

GOAL:

Reduce the incidence and prevalence of alcoholism in Montana and reduce the number of deaths due to alcohol related causes by 10 percent.

RECOMMENDED ACTIONS:

Organization of Services

Support the continued emphasis toward developing a coordinated network of services, programs and counselors to increase effectiveness and efficiency of treatment.

Public Education

Stress early intervention for appropriate screening and treatment, especially with youth.
Utilize the media for referrals to community support organizations with proven success rates.

Prevention and Detection

Support the prevention strategies of the Alcohol and Drug Abuse Division of the State of Montana.

Reimbursement

Continue to encourage third-party payors to provide coverage for alcohol treatment and rehabilitation.
Encourage local authorities to use alcohol tax monies for alcohol programs.

1.0 HEALTH STATUS INDICATORS

There are no precise estimates for the number of alcoholics in Montana. The alcohol and Drug Abuse Division, within the Department of Institutions, estimates the 8.5 percent of the general population and 70 percent of the Indian population are alcohol abusers. The number of alcohol-related accidents and the per capita consumption rate of alcoholic beverages are increasing.

In this report two proxy indicators of alcohol abuse are used to show differences among the counties within Montana. They are: 1) death rates from cirrhosis of the liver, and 2) death rates from motor vehicle accidents.

Alcoholic cirrhosis of the liver in Montana was ranked the number ten cause of death in 1976. Previously, it had not been in the top ten. In 1976, 119 individuals were reported to have died from cirrhosis of the liver, and in 1978, 107 deaths were reported.

During 1978, approximately 56 percent of the drivers and 34 percent of the passengers killed in motor vehicle accidents had been drinking (.05 percent or more blood alcohol).

Table 1 shows these two rates by subarea and county. The statistics are of limited value since they are not age adjusted.

The Alcohol and Drug Abuse Division, which administers alcohol programs in Montana, has identified five groups for which special programs are to be developed. These are:

- Native Americans
- Women
- Youth
- Rural Populations
- Elderly

During 1979, 22 percent of the admissions to alcohol treatment programs were Native Americans; about 23 percent were women, and 6 percent were under 17 years of age. Statistics indicate that alcoholism, coupled with misuse of prescription drugs, is by far the greatest drug problem among Montana's elderly.

2.0 PREVENTION STRATEGIES

The prevention programs available in Montana appear to be primarily directed to youth. The Alcohol and Drug Abuse Division (ADAD) has set up a Statewide Youth Task Force to recommend possible programs. Recommendations, to date, have suggested developing alternative programs for youths (such as youth centers), developing employment opportunities, and making up-to-date materials available to youth and persons working with youth.

ADAD, in coordination with the Office of Public Instruction, has also developed curricula for schools (grades kindergarten through 12) which deal with alcohol and drug abuse. ADAD is hoping to obtain a legislative mandate to ensure that alcohol and drug education courses will eventually be delivered in all schools.

The Department of Health and Environmental Sciences also maintains an alcohol and drug abuse education film library under contract from ADAD. These films are available to any individual or group in Montana for the cost of mailing. They are frequently used by schools and civic groups.

3.0 SCREENING AND EARLY INTERVENTION STRATEGIES

At the present time, self-diagnosis or family awareness appear to be the first steps in delivering alcohol services to the abuser. Of the persons admitted to alcohol programs during 1979, 22 percent were self-referral and 8 percent were referrals by the patient's immediate family. Court referrals constituted another large block of people coming in for treatment, accounting for 10 percent of all the admissions.

Another prevention and early intervention program sponsored by the Highway Traffic Safety Bureau, Department of Community Affairs and the Highway Patrol Bureau, Department of Justice, is the DWI Court School. Many persons convicted of driving under the influence of alcohol are required by the court to attend a course of six sessions — two hours apiece — dealing with alcohol education. Most of the state approved, off-reservation alcohol programs serve as the schools. A fee of $50 is charged, and usually the court assesses this as part of the fine.

It has been estimated that about 25 percent of those attending the school are referred to an alcohol treatment program; however, not all participate.

4.0 TREATMENT PROGRAMS

ADAD is currently implementing a regional, community-based concept for delivering alcohol treatment services with satellite counselors providing services to outlying areas. Figure 1 shows the location of these programs.

To strengthen the programs and to develop a better financial basis for them, ADAD is working to maximize third-party payments for alcohol treatment. One strategy is to amend the Insurance Code, through legislative action, to require alcohol service coverage. A second strategy is to approve programs (annually) in accordance with the state law and to certify alcohol counselors. At the present time, ADAD is also encouraging the various programs to become accredited by

Joint Commission on the Accreditation of Hospitals. The certification program for professionals is now operating on a voluntary basis. ADAD is suggesting that the legislature make it a mandatory program for all counselors in state programs. It is felt that these two certification programs will reduce the third-party payor resistance toward reimbursement for alcohol and drug services.

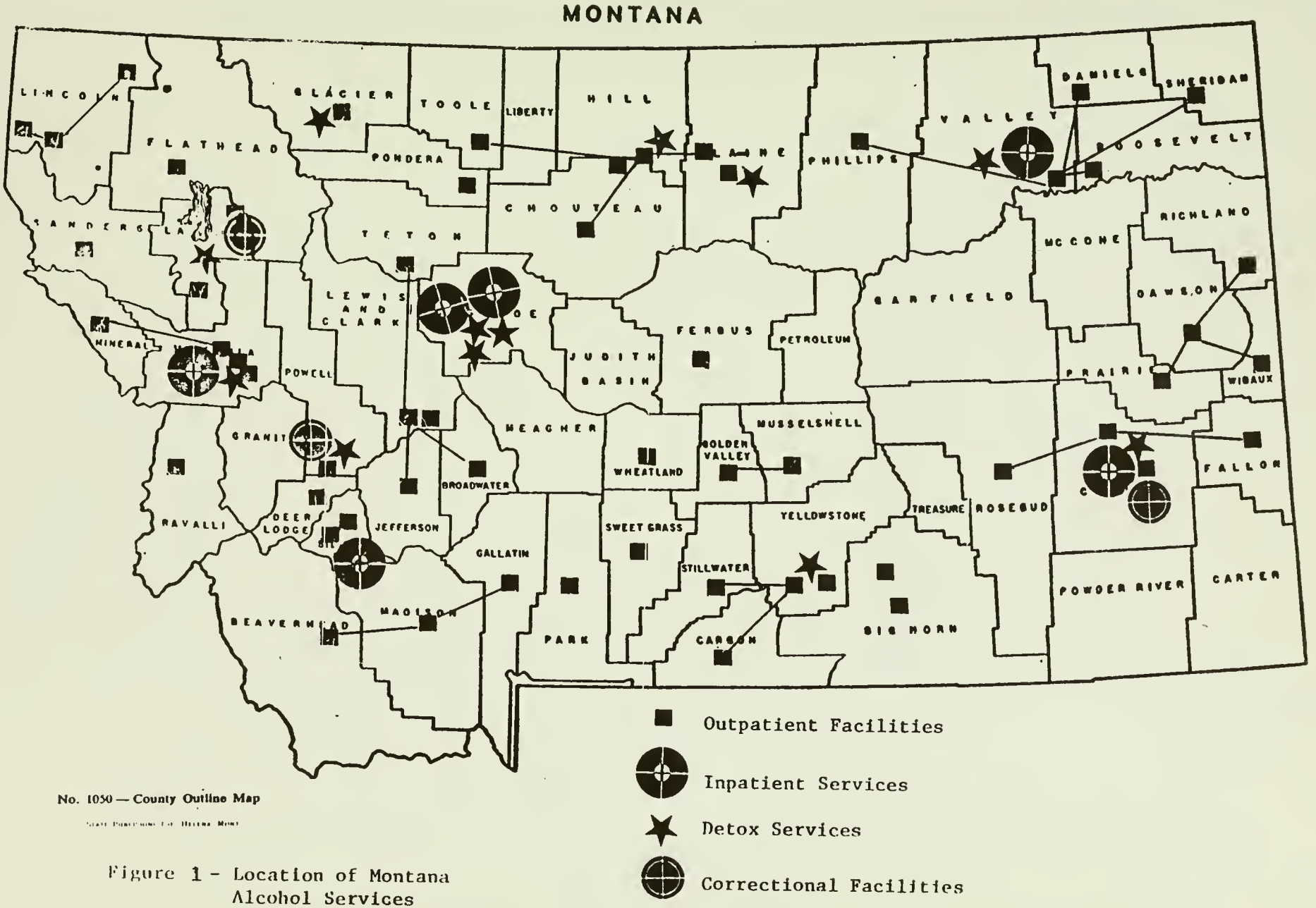
5.0 REHABILITATION AND AFTERCARE

In order to be approved and ADAD, rehabilitation and after care services must exist. Most aftercare services, however, appear to be provided by local Alcoholics Anonymous (AA) groups and associated programs (Alanon, Alateen).

Subarea and County	Crude Death Rate For Cirrhosis of the Liver (1978)	Crude Death Rate for Motor Vehicle Accidents (1978)	Admissions to Alcohol Programs By County of Residence (1979)
Northwestern			
Lincoln	2	4	148
Flathead	6	22	318
Sanders	-	4	28
Lake	4	9	172
Mineral	-	2	16
Ravalli	2	12	115
Missoula	7	15	279
North Central			
Glacier	6	11	142
Toole	-	1	38
Pondera	-	2	33
Teton	-	3	31
Cascade	9	30	463
Chouteau	1	-	25
Hill	1	7	95
Blaine	4	1	114
Liberty	1	1	1
Southwestern			
Beaverhead	1	3	98
Madison	1	3	27
Gallatin	1	15	137
Lewis and Clark	6	9	296
Broadwater	-	1	15
Jefferson	-	1	37
Meagher	-	3	18
Silver Bow	10	19	402
Deer Lodge	3	6	105
Powell	-	3	44
Granite	-	-	11
Park	3	7	69
South Central			
Fergus	1	6	97
Petroleum	-	-	8
Judith Basin	-	2	8
Wheatland	-	2	50
Golden Valley	-	1	14
Musselshell	1	-	88
Sweet Grass	2	-	20
Stillwater	-	2	33
Carbon	1	1	44
Big Horn	4	9	273
Yellowstone	11	28	604
Eastern			
Valley	2	2	101
Daniels	-	-	9
Sheridan	-	3	14
Roosevelt	8	5	85
McCone	1	1	3
Garfield	-	-	6
Richland	-	4	73
Dawson	-	2	87
Wibaux	-	1	2
Rosebud	-	5	181
Treasure	-	-	1
Powder River	-	1	15
Custer	2	-	101
Prairie	1	1	3
Phillips	3	3	75
Fallon	2	3	34
Carter	-	-	7

TABLE 1 - Crude Mortality Rates in Montana from Cirrhosis of the Liver, Motor Vehicle Accidents and Admissions to Alcohol Programs by County of Residence

Source: Unpublished data from the Bureau of Records and Statistics. Montana Comprehensive Plan for Alcohol and Drug Abuse Prevention, FY 1981.



No. 1050 — County Outline Map

Figure 1 - Location of Montana Alcohol Services

APPENDICES

APPENDIX 1

APPROPRIATENESS REVIEW SERVICES SPECIFIC CRITERIA

1.0 INTRODUCTION

In December of 1979, final regulations were issued from the Department of Health, Education, and Welfare of the Public Health Service, concerning health systems agency and state reviews of the appropriateness of existing institutional health services. The final regulations identify the responsibilities of both the health systems agency's and the state health planning and development agency's responsibilities for accomplishing appropriateness reviews.

The authority for the Health Systems Agency review concerning appropriateness stems originally from Section 1513 (g) of Public Law 93-641, "The National Health Planning and Resources Development Act of 1974." This Act was amended by Public Law 96-79, "The Health Planning and Resources Development Amendments of 1979." These laws authorize and require each health systems agency to review periodically at least those institutional and home health services which are offered in the health service area of the agency and with respect to which goals have been established in the State Health Plan. This requires periodic review of those health services offered within the health services area and to make recommendations to the State Health Planning and Development Agency respecting the appropriateness of such services in the health service area. "Periodically" has been defined by regulation to mean within three years of the issuance of final regulations concerning appropriateness review.

At the present time there are no sanctions applied to any institution found to be providing an inappropriate service. The concern of appropriateness review is one of system wide assessment of services and recommendations concerning voluntary modification and alteration of services found to be appropriate or inappropriate.

For any given service category, six major criteria are considered in reviewing the degree to which existing services meet defined need. These criteria and their definitions are as follows:

1) Cost — The total economic value of resources required to provide services, including all financial expenditures, especially expenditures for captial and operating requirements.
2) Availability — A measure of the appropriate supply and mix of health services and the capacity of resources for providing care.
3) Accessibility — A measure of the degree to which the system inhibits or facilitates the ability of an individual or group to gain entry and receive appropriate services, including geographic, architectural, transportation, social, time and financial considerations.
4) Continuity — A measure of the degree of effective linkages and coordination in providing a succession of services over time, regardless of whether care is provided in one setting or multiple settings.
5) Acceptability — An individual's (or group's) overall assessment of medical care available to him or her in terms of factors such as cost, quality, results, convenience of care and provider attitudes.
6) Quality — A measure of the degree to which health services delivered, regardless of to whom or in what setting, meet established professional standards and judgments of value to the consumer.

1.1 Clinical Cardiovascular Laboratories and Cardiac Surgery Facilities

INTRODUCTION

Cardiac angiographic and cardiac surgery services are provided to Montanans by three regional centers located in Billings, Great Falls and Missoula. These centers receive referrals from the entire state and the Billings Deaconess also receives referrals from northern Wyoming. There are no facilities equipped and staffed for pediatric cardiac services.

AVAILABILITY

Billings Deaconess Hospital, St. Patrick Hospital in Missoula, and Montana Deaconess Medical Center in Great Falls should continue to provide cardiac angiographic and cardiac surgery services to Montanans. St. Vincent Hospital in Billings should continue the provision of cardiac angiographic services. Table 1, of the Clinical Cardiovascular Laboratories and Cardiac Surgery Facilities Plan component cites the cardiac catheterization and open heart procedures experience for each hospital for the periods 1972 - 1979.

ACCESSIBILITY

1. Specialized cardiac services should be accessible to 75 percent of all Montanans within 200 miles. Presently, the four facilities providing cardiac catheterizations and the three facilities providing open heart surgery serve 75 percent of all Montanans within 200 miles.
2. Access to cardiac catheterization and open heart surgery programs should be available to the populace on a 40 hour per week, 52 weeks per year basis.
3. The Montana Health Systems Agency should not endorse any Certificate of Need application for a new cardiac angiographic facility until existing facilities have exceeded the maximum of 500 procedures per laboratory in accordance with National Guidelines.
4. The Montana Health Systems Agency should not endorse any Certificate of Need application for open heart surgery facilities until the existing facilities offering open heart surgery exceed the National Guidelines of 350 procedures annually per facility.

COST

Introduction

— The Department of Health and Environmental Sciences does not collect specific cost data for angiography or open heart surgery. The Health Systems Plan, however, does reflect the cost of these programs in two specific long range actions.

1. All hospitals providing cardiac angiographic services should relate to the actual cost of providing these services.
2. Total charges for open heart surgery should relate to the actual cost of providing total services for surgery in addition to in-patient, post-operative treatment.

— Cost data is available to the MHSA based on the projection of net revenues realized as projected by Montana Deaconess Medical Center in Great Falls in their Certificate of Need application. Projections based on 100 open heart procedures during the first year of operation result in $9840 per patient and $9012 per patient beginning in the second full year of operation. No accurate average cost figures were available for cardiac angiography per patient.

ACCEPTABILITY

All facilities offering cardiac, diagnostic, and surgical services should have available all support services required and maintain appropriate support medical specialists to assure comprehensive patient treatment. The Health Systems Plan does specify that all centers have available the support services required and maintain appropriate support medical specialists.

QUALITY

1. There should be a minimum of 300 cardiac catheterizations of which at least 200 should be intra-cardiac or coronary artery catheterizations, performed annually in any adult cardiac catheterization unit within three years after initiation. Refer to Table 1 of the Plan component for the number of cardiac catheterization procedures performed.
2. There should be a minimum of 200 open heart surgery procedures performed annually, within three years after initiation in any institution performing open heart surgery for adults. Refer to Table 1 of the Plan component for the number of open heart surgery procedures performed by facility.
3. In order to provide quality nursing care for open heart surgery patients in the intensive care unit, there should be no less than one registered nurse for every open heart patient during the first 24 hours. In addition, optimal staffing requires adequate backup support from other registered nurses assigned to the ICU.
4. The Health Systems Agency should obtain information on quality of service from the Professional Standards Review Organization, if available.

CONTINUITY

1. Cardiac surgery programs in Montana should design and be prepared to encourage, through active support, patient self-help groups to provide for more comprehensive rehabilitation of open heart surgery patients.
2. An adequate follow-up system should be established by the surgical team so that patients are seen as often as required in the immediate post-discharge period and subsequently followed at appropriate intervals.

1.2 End Stage Renal Disease

Introduction

The following criteria are to be used in the evaluation of existing End Stage Renal Disease services in the state of Montana through the Federally mandated Appropriateness Review program, and for use as a planning guide in evaluating future needs. The health systems performance characteristics to be addressed in appropriateness review will include availability, accessibility and cost.

The acceptibility, quality and continuity of ESRD services in Montana will not be addressed in detail due to lack of Federal guidelines regarding delineation of specific definitions, but may be alluded to in broad and very general terminology.

Under PL 95-292, ESRD services are coordinated nationally and monitored for cost and quality by means of Network Coordinating Councils. Network Coordinating Council #2 (NCC #2) coordinates the availability of ESRD services in Alaska, Idaho, Montana, Oregon, and Washington.

It is the intent that the Criteria and Standards for Montana be in concert with federal guidelines and NCC #2 guidelines and philosophies for the provision of services and evaluation of ESRD planning and implementation.

The following criteria are to be used in conjunction with and are supported by the ESRD component of the 1981 Montana HSP. Current facility information and utilization rates as well as the projected need, can be found in the HSP component.

DEFINITIONS

Definitions to be applied in Montana conform to Part 405 of Chapter III of Title 20 of the Code of Federal Regulations as approved on May 24, 1976.

1. Dialysis is a process by which dissolved substances are removed from a patient's body by diffusion from one fluid compartment to another across a semipermeable membrane. The two types of dialysis which are currently in common clinical practice are hemodialysis and peritoneal dialysis.

   (a) *chronic maintenance dialysis:* dialysis which is regularly furnished on an outpatient basis to an ESRD patient (at any level of patient involvement in either a hospital-based, nonhospital-based setting, or home dialysis.) Both hospital based and nonhospital-based may provide either self-care with patients involved in their own care, or limited care dialysis without patient involvement.

   (b) *inpatient dialysis:* dialysis which, because of medical necessity, is furnished to an ESRD patient on a temporary inpatient basis in a hospital;

   (c) *self-care dialysis training:* a program which trains ESRD patients or their helpers, or both, to perform self-care dialysis.

2. End stage renal disease (ESRD) refers to that state of renal impairment which is virtually always irreversible and permanent, and requires dialysis or kidney transplantation to ameliorate uremic symptoms and maintain life.

3. An ESRD facility is a facility which is approved to furnish at least one specific ESRD service. Such facilities are:

   (a) *renal transplantation center:* A hospital unit which is approved to furnish directly transplantation and other medical and surgical specialty services required for the care of ESRD patients, including patient dialysis furnished directly or under arrangement. (No transplant services are available in Montana and none are projected prior to 1985.)

   (b) *renal dialysis center:* A hospital unit which is approved to furnish the full spectrum of diagnostic, therapeutic (including inpatient dialysis furnished directly or under arrangement), and rehabilitative services, except renal transplantation required for the care of ESRD dialysis patients.

   (c) *Renal Dialysis Facility:* A unit which is approved to furnish dialysis service(s) to ESRD patients.

AVAILABILITY

Any discussion of the availability of ESRD services must include consideration of transplanting capabilities, the number and location of facilities performing dialysis, and the impact of home dialysis upon the need for in-center dialysis. The capacity of a facility or center to perform dialysis is determined by the number of stations it operates. This number is regulated by the State Health Planning and Development Agency through the Certificate of Need process and by the Federal government (Health Standards and Quality Bureau) which approves each facility's stations for reimbursement through the Medicare ESRD Program.

1. The establishment of expansion of ESRD facilities should be based upon actual and/or projected utilization of (demand for) ESRD services.

   Dialysis facilities or centers located in a Standard Metropolitan Statistical Area (SMSA) of less than 500,000 population, or in an area not included in a SMSA, which perform greater than 20% of their dialysis on outpatients should meet the following utilization conditions, unless granted exception status in accordance with Federal Register 405.2122(c):

   a. for unconditional status: 3 or more dialysis stations performing an average of 4.0 or more dialyses per station per week.
   b. for conditional status: 2 or more dialysis stations performing an average of 4.0 or more dialyses per station per week.

   Renal dialysis centers which perform 20% or less of their dialyses on outpatients should meet the following utilization conditions, unless granted exception status in accordance with Federal Register 405.2122 (c):

   a. for unconditional status: 3 or more dialysis stations performing an average of 4.0 or more dialyses per station per week.
   b. for conditional status: 2 dialysis stations performing an average of 4.0 or more dialyses per station per week.

   Approved stations should achieve an 80% utilization rate based on two patient shifts, six days per week, 52 weeks per year prior to expansion and should be able to project this rate within two years of expansion, with the following exceptions:

   a. the only reduction from total approved stations for purposes of calculating facility utilization will be for justified self/home training stations. A station is justified as a self/home training station by indication (from the ESRD Annual Facility Survey) if at least 6 patients annually have been self/home trained per justified station;

b. facilities in which at least 10% of total dialyses are peritoneal, are required to achieve a 70% utilization rate;
c. facilities in which at least 20% of total dialyses are peritoneal are required to achieve a 70% utilization rate;
d. exceptions for peritoneal dialyses and home training dialyses will be based on NCC #2 Quarterly Facility Survey data. These rates recognize the longer duration of the peritoneal dialysis;
e. while a facility has a patient(s) infected with hepatitis, both the patient(s) and the station being used by the patient(s) will be removed from saturation calculations.

2. Home dialysis should continue to be considered as the principle alternative to outpatient facility treatment for ESRD services.
3. The ESRD service shall promote home dialysis as the method of first choice for all patients not electing or who are medically unable to undergo transplantation and for patients for whom home dialysis is medically and emotionally feasible.
4. Training for Home dialysis and dialysis helpers should be provided by the facility.
5. ESRD in Montana should be certified for reimbursement for Continuous Ambulatory Peritoneal Dialysis (CAPD) and should promote the use of this method, when medically acceptable, to allow home dialysis in rural areas.
6. Facilities must have available means of referral for medically suited patients to a transplantation center outside the state of Montana.
7. Liaison with a transplant center for patient referral and follow-up for medically suited transplant patients should be maintained.
8. The introduction and transportation of patients to an approved transplant center should be provided.

ACCESSIBILITY

1. The public should have enough information about ESRD resources to make informed choices about where to obtain services.
2. The patient care policies of ESRD facilities should be available on request to potential patients.
3. Measures of the accessibility of ESRD services should relate to the type of service required and the geographic region in which individuals in need of that service reside.
4. Services should be available within a reasonable driving time for all patients.
5. Each ESRD patient shall have the opportunity to minimize inconveniences related to his/her need for dialysis.
6. A policy should exist at each dialysis facility that allows for scheduling shifts based on a prioritization of patient's personal schedules and needs.
7. A policy should exist at each dialysis facility that allows for reasonable consideration of a patient's need for privacy.

COST

Under the provisions of the P.L. 92-603 passed in 1972 an amendment to the Social Security Act (SSA) provided for Medicare coverage of all costs of dialysis for ESRD patients who a) are fully or currently entitled to monthly benefits under SSA; or b) are dependents of such an individual. This reimbursement covers approximately 95 percent of the population.

1. A cost effective system of care should be provided for all ESRD services offered by a facility or institution.
2. Facilities should take advantage of maximum federal reimbursement.
3. Accessibility for patients within a given locale should be maximized to reflect a cost effective and efficient operation.
4. Organization and staffing of the facility should reflect maximum efficiency for maximum utilization of stations.
5. Scheduling of patients should consider staff function and minimize staff down time.
6. Home dialysis, a less expensive treatment modality, should be encouraged as an alternative to outpatient services.
7. ESRD facilities should continue to explore the treatment modalities of in-center self dialysis and chronic ambulatory peritoneal dialysis as a cost-saving method of patient management.

ACCEPTABILITY

1. Patients should participate in decisions about their treatment.
2. It should be part of the long term program of every dialysed patient that his/her suitability for transplantation or home dialysis be considered.
3. Patients should be satisfied with the nonmedical aspects of their care.
4. There should be evidence in the facilities written policies that patient satisfaction is considered in all planning.
5. For renal dialysis facilities and hospitals, there should be an annual report which contains a brief description of the patient population by age and sex, percentage of new patients referred for transplantation, percentage of new patients referred for home dialysis, a report of specific numbers of patient care services provided during the fiscal year, and a financial report (income statement and balance sheet). This information is accessible to patients and potential patients.
6. There should be a grievance mechanism, and there recent evidence that new patients understand it and feel free to use it.

QUALITY

1. Each dialysis center shall be overseen by a nephrologist who resides in the community where the dialysis center is located.
2. Properly trained personnel must be available in adequate numbers to meet staffing patterns as required under the conditions of participation in Medicare (Part 405.2162 of Chapter III of Title 20 of the Code of Federal Regulations).

CONTINUITY

1. ESRD patients are assured continuity of care.
2. Each patient's attending physician with staff privileges at a chronic care facility has the major responsibility for managing the care of each ESRD patient.
3. Patient care policies of the institution explicitly provide for routinely informing a patients's primary care physician of changes in his treatment plan, long-term program, and the physician has access to the patient's records.

1.3 Neonatal Intensive Care Units

INTRODUCTION

Hospital services for the infant can be categorized into three levels of care, level I, level II, and level III. Level III units are restricted to medical school environments, and are not found in Montana. Level I and II units may be defined as follows:

Level I- These are hospitals whose functions are to provide services primarily for uncomplicated maternity and newborn patients. The number of deliveries in these hospitals is too low to provide an adequate economic base for complex obstetric and newborn care and to provide the caseload needed to attract the necessary staff.

The critical considerations in the care of patients anticipating delivery in these hospitals are the earliest possible detection of the "high-risk" parturient and newborn and availability of trained personnel and facilities to provide competent emergency obstetric and newborn care.

In metropolitan and suburban areas, level I units should be encouraged to consolidate into larger services in one or two hospitals. Geographic remoteness or difficulties in transportation such as we experience in the state of Montana demand that some level I units continue in operation, but these units must be assisted in developing channels for consultation, referral and transport for mothers of infants with complications.

Level II- Level II units will be located in the larger urban areas or more urban areas of the state of Montana where the majority of deliveries occur. The number of these units will increase as smaller local hospital units are consolidated.

These level II units will provide a full range of maternal and neonatal services for uncomplicated patients and for the majority of complicated obstetrical problems and certain neonatal illnesses. They will have a highly trained multi-disciplinary staff and modern, well maintained equipment.

While level II hospitals will vary considerably in their capabilities in Montana, the volume of serious obstetrical complications and the number of very sick newborns may be sufficient to justify the establishment of a comprehensive intensive care perinatal unit.

Typically, those infant conditions and illnesses treated in neonatal units are:

1. prematurity;
2. respiratory disease, birth asphyxia, and hyaline membrane disease;
3. congenital heart disease;
4. other congenital anomalies;
5. infectious disease including sepsis, meningitis, and pneumonia;
6. metabolic diseases.

AVAILABILITY

Currently there are six hospitals in Montana offering neonatal intensive care services. The cities in which these are located and their respective catchment areas are depicted in the plan component Figures 1a and 1b. As indicated in the referenced figures, the exact service areas are not clear-cut, with several outlying counties claimed by more than one neonatal service.

Table 1 shows the number of births occuring in each of these hospitals between 1975 and 1979 and presents selected utilization statistics for 1979 for each of the NICU.

Based on national criteria and the statistics utilized in Montana, the cities of Billings, Great Falls, and Missoula are considered level II units.

The cities of Butte, Kalispell, and Bozeman do not appear to have the caseload and staffing to be large regional centers. They do, however, provide some level II services to their surrounding areas, which is indeed appropriate.

Figure 1a and 1b along with Table 1 of the plan component should be utilized to reflect overall availability within the state of Montana and the utilization based on live births for the past five years within the State of Montana.

ACCESSIBILITY

Since most of the population is not urban in the State of Montana, it is likely more than 25 to 35 percent of the population will be more than one-half to one hour away from a regional center, or a level II center. For these rural and geographically more remote groups, it is essential that special transportation, including air transportation, be maintained in the State of Montana and be utilized by the level II facilities within the state.

Additionally, adequate facilities should be maintained by both level I and level II facilities within the Montana to be able to make appropriate transportation arrangements for transport to level III facilities outside Montana.

Referral mechanisms from Level II and I centers should be adequate to Seattle, Washington; Portland, Oregon; Denver, Colorado; and Salt Lake City, Utah.

It should be noted that some referrals are made from the Eastern part of Montana into Minneapolis/St. Paul. This referral link should be identified.

COST

The care rendered by level II units is expensive. While there are no local estimates of cost delivering this care in Montana, a recent study of Cedars of Lebanon Medical Center in Los Angeles, indicates that a level III center indicated an average cost for a surviving infant under 1200 grams is $40,287. A more specific cost criteria for Montana would be the cost of level II care which would run between $20,000 and $25,000.

During the course of Appropriateness Review for this particular service in Montana, institutions providing both level I and level II care should be encouraged to gather and maintain specific cost data for future reference.

ACCEPTABILITY

All facilities offering neonatal intensive care services in Montana should maintain support specialists in order to provide full service to the patient.

Where at all possible, transportation systems which offer the most cost-effective means of transportation of the patient from one level of service to the other is offered.

Additionally, professional education and social services to the parents of the patient should be offered by the institution.

QUALITY

The basic quality of services for this tertiary care service in Montana rests with the Professional Services Review Organization (PSRO).

Additionally, all hospitals within Montana offering services for the newborn should have: a twenty-four hour laboratory service; a twenty-four hour x-ray service; cardiac, respiratory and blood pressure monitors and respirators.

CONTINUITY

For the purpose of continuity of care in the State, level I services should maintain close liaison and a referral network with level II services which are offered within the state.

Additionally, the level II services should maintain close liaison back to level I and perhaps for transfer to level III services outside Montana.

For post neonatal unit service, instructions for primary care of the infant remote from the initial site of medical service should be obvious.

1.4 Radiation Therapy

INTRODUCTION

A full range of radiation therapy including curative and palliative radiation therapy should be available to all Montanans for the purpose of comprehensive cancer management. The Health Systems Plan component addressing radiation therapy identifies those facilities in Montana offering radiation therapy and the type of equipment and extent of services available.

AVAILABILITY

Radiation therapy facilities should exist in Montana in the network. The first, a comprehensive cancer management facility, should be able to offer a full range of curative and palliative radiation therapy services.
Each of these facilities should:

a. Serve a population of at least 200,000 persons in a radius of 150 to 175 miles;
b. Treat at least 300 new cancer patients a year; and
c. Provide at least 6000 treatments (patient visits) a year.

A limited cancer management facility should primarily provide palliative treatments for local patients. They should:

a. Serve a population of at least 67,000 people in a radius of 100 miles;
b. Treat at least 100 new cancer patients a year; and
c. Provide at least 1000 treatments (patient visits) a year.

The types of equipment available at facilities around Montana and the type of treatment available may be found in the plan component on radiation therapy under definitions. Additionally, Figure 1 of the plan component shows the location, the theoretical catchment areas, and major referral support locations of the radiation therapy facilities for the State of Montana.

For the type of equipment utilized by a specific institution reference is made to Table 1 which describes the institutions and whether they possess the megavoltage, supervoltage, orthovoltage, or superficial radiation therapy equipment.

ACCESSIBILITY

Table 2 of the plan component shows the estimated travel time for cancer patients living in selected communities and traveling to the nearest full service cancer treatment center. It should be noted that this accessibility represents the majority of patients treated in the State of Montana, however, many cancer patients residing in the State of Montana choose to use facilities outside of the state; primarily, Spokane, Washington; Seattle, Washington; Salt Lake City, Utah; and Denver, Colorado.

COST

Table 2 of the plan component likewise shows the travel expenses incurred by each patient would be between $600 and $900 within the state. Assuming that the average charge per treatment is $50 and each patient needs 20 visits, then a ball park figure for the medical cost of treating a patient is somewhere around $1,000 for one treatment process. This does not include any cost information incurred for out of state travel for those patients who choose to receive cancer therapy outside of the state.

ACCEPTABILITY

Acceptability of the treatment received by the consumer (patient) should be determined based on the following:

a. Travel time and expense
b. Waiting time within the facility to receive treatment
c. Attention to patient comfort, (particularly involving certain side effects such as nausea, etc.)
d. The extent of patient education which is carried out in order that the patient understands the process and the benefits and/or side effects involved.

QUALITY

Table 3 of the plan component describes the desired characteristics of the two types of cancer treatment facilities which exist in Montana. These are described in terms of primary equipment, support equipment, staffing, relative medical specialists available full time as professionals, and patient load.

In addition to the basic primary equipment such as Linear Accelerators, Cobalt-60 Units or Orthovoltage Machines, a needed piece of support equipment is a simulator.

Staffing patterns should be one or two full time radiation therapists and one full time radiation physicist. Relative medical specialists which should be available full time are: Medical Oncology; Adequate Surgical Teams, and Pathology.

The patient load for comprehensive care for co elated cancer management facilities should be 300 new cases and 6000 treatments per year as specified under Availability.

For cooperating cancer management facilities which represents limited care, the following should be available:

a. Primary equipment - Cobalt-60 Unit and/or Orthovoltage Units.
b. Support equipment - None

Staffing - at least one full time general radiologist and consultant physicist.

CONTINUITY

Each facility providing radiation therapy should assure that appropriate medical receipt and retention from referring physician is maintained. Additionally, for those patients to be monitored by family physicians remote from the treatment center, instructions to the primary care physician should be provided.

In the interest of continuity of care, all facilities providing radiation therapy should participate in a statewide cancer registry to ensure continuity.

1.5 General Hospital Acute Inpatient Care

INTRODUCTION

General Hospital Acute Inpatient Care addresses four types of hospital beds: general medical/surgical beds, critical care (ICU/CCU) beds, maternity beds, and pediatric beds. Bed need estimates, based on a probability that a bed will be available 99.9 percent of the time, do not specify the specific allocation of beds among the four bed types. Rather, bed allocation is the responsibility of the administrator.

AVAILABILITY

1. Hospitals in Montana should continue to provide 24 hour inpatient services for the diagnosis, short term care, and treatment of patients. Eight counties; Blaine, Golden Valley, Jefferson, Judith Basin, Petroleum, Powder River, Treasure, and Wibaux, do not have local hospitals and therefore should continue to receive services through nearby community hospitals or the larger regional hospitals. Hospital bed distribution by subarea is depicted below:

No. of Beds	No.of Hospitals	Total No. of Beds	No. and Percent of Beds (Subarea) Eastern	No. Cent.	So. Cent.	So. West.	No. West.
30	30	506 (15%)	152 (30%)	103 (20%)	128 (25%)	68 (13%)	55 (11%)
30-89	18	786 (23%)	221 (28%)	50 (6.4%)	47 (6.0%)	215 (27%)	253 (32%)
90-189	8	981 (29%)	120 (12%)	120 (12%)	——— ———	535 (55%)	206 (21%)
190+	5	1,111 (33%)	——— ———	472 (42%)	422 (38%)	——— ———	217 (20%)
Total	61	3,384	493 (15%)	745 (15%)	597 (18%)	818 (24%)	731 (22%)

Hospital Bed Distribution by Subarea

2. All hospitals in Montana should provide critical care (ICU/CCU) services even though the provision of these services is not cost effective.

ACCESSIBILITY

1. According to Health Systems Plan bed need projections, the following counties appear to need additional hospital beds by 1985:

Flathead	13	Sanders	5
Lewis & Clark	9	Sheridan	5

These bed need projections are liberal in that they may slightly over-estimate the number of hospital beds actually needed.

2. Excess hospital beds should continue to be reduced through the voluntary efforts of hospitals as they remodel or renovate their facilities. Areas identified as having substantial excess capacity (20 or more surplus beds) are:

Lake	25	Silver Bow	95
Missoula	83	Custer & Powder Rvr.	51
Cascade	96	Deer Lodge	26
Hill & Blaine	30		

Some areas identified as having excess bed capacity may investigate reallocating beds to units identified as having bed deficits. For example:

a. St. Patrick Hospital in Missoula should explore the redesignation of nine of its forty excess hospital beds to the acute care psychiatric unit
b. Northern Montana Hospital in Hill County (Havre) should examine the feasibility of utilizing nine of its thirty excess hospital beds for the development of an acute care psychiatric unit
c. The Eastern subarea should examine the feasibility of developing an acute care psychiatric unit in one of the following locales experiencing excess bed capacity

City	County	Excess Hospital Beds	Acute Care Psych Beds Needed
Miles City	Custer	51	8
Glendive	Dawson	3	7
Sidney	Richland	3	7
Glasgow	Valley	9	8

d. An eighteen bed comprehensive rehabilitation unit may be justified in the Southwestern Subarea and would absorb 10 percent of the 181 bed surplus. Silver Bow County is expected to have an excess of 95 hospital beds.

e. Montana Deaconess Medical Center in Great Falls should explore expanding its comprehensive rehabilitation unit by two beds, thereby reducing its excess hospital bed capacity by two percent.

COST

1. Pediatric services in Butte, Great Falls, Missoula, and Billings should be consolidated in each area. Consolidation of pediatric services could amount to a systems savings of $275,000 per year if implemented in all four communities.

2. Hospital data for 1975 — 1979 indicates the following trends with respect to adjusted costs per day and adjusted costs per admission for Montana Hospitals:

	1975	1976	1977	1978	1979	% of change 1975 - 1979
Adjusted Costs Per Day $	114	132	259	183	200	75.4
Adjusted Costs Per Admission$	621	728	830	965	921	48.3

Hospitals should continue to provide quality health care at the most reasonable cost possible. Facility specific cost data for 1977, 1978, and 1979 is presented by subarea in Tables A-1 through A-5.

ACCEPTABILITY

1. Acceptability of general hospital acute inpatient care services should continue to be ensured through bed availability and local county support. Patient origin information generated by the Department of Health and Environmental Sciences indicates that county populations primarily utilize the local hospital:

Region	Number Discharges from Same County as Hospital	Percent Same County
Eastern	16,451	65.9
North Central	20,692	77.7
South Central	22,089	82.2
Southwestern	23,747	75.9
Northwestern	22,662	82.5

QUALITY

Quality assurance and peer review programs should be maintained and stressed in every hospital to ensure proper referral of the patient to a more specialized, or in some cases, a lesser level of care. Quality assurance data should be provided by the Professional Standards Review Organization, PSRO, at its descretion.

CONTINUITY

1. Hospitals should cooperate with other health care entities to ensure continuity of care through organized referral and patient transfer arrangements.
2. Hospitals providing specialized tertiary and secondary health care services, i.e., comprehensive rehabilitation, should maintain liaison with health care providers in the state.

1.6 Acute Care Psychiatric Units

INTRODUCTION

There are presently four hospitals in Montana that have psychiatric units, are staffed by professional personnel and utilize therapeutic treatment modalities. The units are Billings Deaconess Hospital, Montana Deaconess Medical Center in Great Falls, St. Patrick Hospital in Missoula and Silver Bow General Hospital in Butte. Other hospitals in the state have security rooms for psychiatric patients or will use a general bed or room for such patients.

There is no formal acute psychiatric hospital unit in Eastern Montana. As a result, a unique method of providing inpatient psychiatric care has been developed. Persons in need of inpatient treatment for acute psychiatric illnesses are hospitalized in community hospitals, and treatment plans are developed through the collaboration of local physicians, hospital personnel and mental health professionals.

AVAILABILITY

1. Psychiatric units, if they can be shown to be financially feasible, should be developed at hospitals in Flathead County (Kalispell), Hill County (Havre), Lewis and Clark County (Helena), and Gallatin County (Bozeman). According to MHSA projections depicted on Table 2 of the Plan component, Kalispell could support a 20 bed psychiatric unit, Havre could support a nine bed psychiatric unit, Helena could support a 17 bed psychiatric unit, and Bozeman could support a 16 bed psychiatric unit.

ACCESSIBILITY

1. In addition, the existing Acute Care Psychiatric Units in Missoula and Billings should be encouraged to expand bed capacity. According to MHSA projections, St. Patrick Hospital in Missoula could support a 26 bed psychiatric unit (nine additional beds) and Billings Deaconess Hospital could support a 37 bed unit.

   The admission and utilization data for acute care psychiatric units in Montana are depicted in Table 1 of the Plan component. Statistics presented include the number of beds presently available, total admissions, total inpatient days, average length of stay, and occupancy rate by facility.

COST

1. Psychiatric units should provide, at a minimum, 10 psychiatric beds to ensure financial viability. St. Patrick Hospital in Missoula is licensed for 17 psychiatric beds, Montana Deaconess Medical Center in Great Falls is licensed for 28 psychiatric beds, Silver Bow Hospital in Butte is licensed for 18 psychiatric beds, and Billings Deaconess Hospital in Yellowstone County is licensed for 21 psychiatric beds.
2. Acute Care Psychiatric services should not be duplicated in any community. Presently, the four programs in Montana do not duplicate services.

ACCEPTABILITY

Patient acceptability to the acute care psychiatric services available should be ensured through adequate bed complements at each facility and program direction under a psychiatrist.

QUALITY

1. Each psychiatric unit should be under the direction of a psychiatrist.
2. Each psychiatric unit should be staffed with nurses qualified or experienced in psychiatric care and should be able to comply with the standards for psychiatric facilities published by the American Psychiatric Association.
3. Quality-related statistics as they pertain to acute psychiatric care rendered in Montana should be obtained from the Professional Standards Review Organization (PSRO), at its discretion.

CONTINUITY

A factor which cannot be addressed at this time is the impact of group homes and other less restrictive living arrangements for the mentally ill. As stated in the HSP, the availability of these services locally should lessen the need for chronic care psychiatric units so that they can be used only for the most acutely ill. The presence of these group homes, however, may indicate the need for acute backup services furnished by psychiatric units.

1.7 Long Term Care Facilities

INTRODUCTION

Long term health care refers to the professional or personal services required by an individual on a recurring or continuous basis because of chronic or permanent physical or mental impairment. Long term care involves the provision of services, physical, psychological, spiritual, social, and economic to help people maintain and eventually regain, if possible, an optimal level of functioning. This component will address those long term care beds medically necessary for health maintenance throughout life as well as care during acute protracted illness and disability. Defined in this way, long term care facilities provide inpatient care for the elderly, the convalescing, and chronically diseased patients who require professional nursing care and related medical services.

In estimating the future need for long term care facilities in Montana, the Hill-Burton model based on past utilization of existing facilities and population growth in the immediate county is used. It assumes the primary service area for a long term care facility is the county in which the facility is located.

AVAILABILITY

Long Term Care beds should continue to be readily and locally available to residents needing this type of care. Tables 1-5 of the Long Term Care Plan component present the Long Term Care Facilities available by county and by subarea.

ACCESSIBILITY

1. According to MHSA projections for estimating the need for long term care beds in 1985, the following service areas appear to need 50 or more long term care beds:

   Yellowstone County - 137 beds
   Flathead County - 57 beds

   Refer to Tables 6-10 for the estimate of long term care beds needed in 1985 by facility, by subarea.

2. Service areas where at least 20 additional long term care beds may be required by 1985 include Custer County, 26 beds; Hill County, 46 beds; and Lewis and Clark County, 29 beds. Refer to Tables 6-10, of the Plan component for facility specific bed need projections.

3. Service areas indicating a surplus of long term care beds available should not be encouraged to close or reduce capacity.

COST

Long Term Care services should be provided at the least possible cost to Montana residents needing this type of care. The Montana Department of Health and Environmental Sciences should provide to the MHSA pertinent cost statistics, by facility.

ACCEPTABILITY

1. County residents should have access to long term care facilities within the residing county. Over 80 percent of the long term care admissions to Montana nursing homes during 1979 originated from the county where the facility is located. For facility specific patient origin information, consult the appendices of the Long Term Care Facilities Plan component.

2. As required by state licensing and reimbursement regulations, resident's rights should be defined in writing and appropriate steps taken to ensure that all staff, owners or operators and residents are aware of, understand, and comply with these rights.

QUALITY

The pertinent quality-related statistics should be provided by the Professional Standards Review Organization to the MHSA as needed.

CONTINUITY

Long Term Care Facilities should provide inpatient care for the elderly, the convalescing, and chronically diseased patients who require professional nursing care and related medical services.

1.8 Diagnostic Imaging

INTRODUCTION

The term Diagnostic Imaging refers to those medical procedures which are used to visualize internal body structures. These include the fields of:

1. Diagnostic Radiology
2. Nuclear Medicine
3. Ultrasound
4. Xeromammography

Diagnostic Radiology involves the use of X-rays; nuclear medicine involves the insertion of radioactive tracer materials (radioisotopes) into the patient's body; ultrasound functions, much like sonar, utilizing sound waves to penetrate tissues and then recording their echoes. Ultrasound is particularly useful in obstetrical services to monitor fetal heartbeats. Nuclear medicine and ultrasound have some therapeutic applications, but they are primarily used in diagnostic work. Xeromammography is a special diagnostic procedure used to detect breast cancer.

AVAILABILITY

1. Twelve facilities in Montana have nuclear medicine capabilities, and thirteen facilities have ultrasound capabilities. All inpatient facilities provide basic diagnostic radiology and xeromammography units are located in Billings Deaconess Hospital and Columbus Hospital in Great Falls.

2. No attempt has been made in the 1981 Health Systems Plan to interpret the workloads for nuclear medicine, ultrasound and xeromammography capabilities. This is presently beyond the current state of the arts, therefore all facilities presently offering nuclear medicine, ultrasound and xeromammography services should continue to offer these services.

ACCESSIBILITY

The accessibility to diagnostic radiology, nuclear medicine, ultrasound and xeromammography capabilities should continue to be maintained in Montana. Figure 1, Figure 2 and Figure 3 depict the location of hospitals in Montana with nuclear medicine capability, ultrasound capability, and xeromammography capability respectively.

COST

Diagnostic radiology, nuclear medicine, ultrasound, and xeromammography services should continue to be provided in Montana at reasonable cost. The 1981 Health Systems Plan identifies a range of patient costs for some selected procedures and represents the most realistic cost figures available to the MHSA at present. These procedures and the resultant cost range in dollars are as follows:

Procedures	Patient Cost Range (dollars)
Chest Film (two views)	30-32
Fluoroscopy	59-75
Ultrasound (midline)	42-45
Ultrasound (complete)	65-70
Nuclear Thyroid	30-35
Whole Body Scan	140-148
Liver Scan	72-75
Lung Ventilation Study	132-135

ACCEPTABILITY

Referals should continue to be made to the larger referral hospitals for the more sophisticated imaging capabilities required.

QUALITY

The Montana Health Systems Agency, at the discretion of the Professional Standards Review Organization, should address quality related statistics for diagnostic imaging services in Montana.

CONTINUITY

All acute inpatient facilities in Montana should continue to provide basic radiological diagnostic capabilities. For more sophisticated imaging capabilities, referrals should continue to be made to the larger inpatient facilities. The 1981 Montana Health Systems Plan identifies those facilities offering specialized nuclear medicine and ultrasound capabilities in Figures 1 and 2 of the Plan component.

1.9 Home Health Care

INTRODUCTION

In Montana, all agencies delivering skilled nursing services and one additional therapeutic service in the home are required to be licensed. As a result of this legislation, all new agencies and those existing agencies wishing to expand either their service area or their scope of service must apply for a Certificate of Need from the State Health Planning and Development Agency. The purpose of these guidelines is to develop MHSA policy toward home health care and to establish review criteria for the future development of these agencies.

In estimating service need, the Governor's 12 planning districts are used as a geographical base. This does not mean that all home health agencies should be organized according to these districts. Each home health agency should determine how big an area it can practically serve and what is financially feasible for it to serve. The Governor's planning districts only suggest a possible strategy and method for delivering multi-county services.

AVAILABILITY

The Home Health Care Agencies presently in operation should continue to provide home health care services to the residents of Montana. Refer to Table 1 of the Home Health Care component for a list of the Home Health Care Agencies by subarea and the home health care services provided by each.

ACCESSIBILITY

1. Existing Home Health Care Agencies should be encouraged to expand coverage into geographical areas currently unserved. Three Home Health Agencies presently serve multi-county areas. They are:
    1. Yellowstone City-County Health Department serving Yellowstone, Big Horn, Carbon, Stillwater, Musselshell and Golden Valley Counties.
    2. West-Mont Home Health Care, Inc. in Helena serving Lewis and Clark, Jefferson, and Broadwater Counties.
    3. Area Five Home Health Care Agency in Anaconda serving Deer Lodge, Powell, Beaverhead, and Madison Counties.

    Figure 1 of the Home Health Care component depicts the location and catchment areas of the Home Health Care Agencies in Montana for 1980.
2. Home Health Care Agencies should be established if they can be shown to be financially feasible in four service areas currently not served. These are:
    1. Lewistown
    2. Glasgow and Wolf Point Areas
    3. Cut Bank, Shelby, Conrad and Choteau Areas
    4. Havre, Chester, and Chinook Areas

COST

Home Health Care Services should be available to Montanans at a reasonable cost. Refer to Table 2 of the Plan component for utilization and cost statistics for all Home Health Care Agencies in Montana. The average cost per person served is $381 and the average cost per patient visit is $31.36 as reflected in Table 2 of the Plan component.

ACCEPTABILITY

All Home Health Care Agencies should coordinate efforts of care with local hospitals, nursing homes, physicians, and health departments in the communities served.

QUALITY

Quality of Home Health Care Services should be addressed and provided by the Professional Standards Review Organization, at its discretion.

CONTINUITY

All Home Health Care Agencies, should, as a minimum, supply skilled nursing care and a home health care aid/homemaker capability. For the services supplied by all Home Health Care Agencies, refer to Table 1 of the Plan component.

2.0 Comprehensive Rehabilitation Programs

INTRODUCTION

For the purpose of the Montana Health Systems Plan, Rehabilitation Services as addressed in this component are limited to the health and medical aspects of physical restoration. Furthermore, only those rehabilitation programs in Montana having all the following characteristics are addressed:

1. The program is under the supervision of a physiatrist or formally designated full-time medical director.
2. The rehabilitation program is accredited by the Commission on the Accreditation of Rehabilitation Facilities, or the standards prescribed for rehabilitation programs by the Joint Commission on the Accreditation of Hospitals, and
3. The program has licensed comprehensive short-term rehabilitation beds. A short-term rehabilitation bed is occupied by a rehabilitation patient for a period of 45 to 90 days.

AVAILABILITY

The Comprehensive Rehabilitation Programs presently offered in Missoula, Great Falls, and Billings, should continue to serve the State of Montana. The specific Comprehensive Rehabilitation Programs available and the services provided or contracted for by each facility are depicted in Table 2 and Table 3 of the Plan component.

ACCESSIBILITY

1. In addition to the three existing Comprehensive Rehabilitation Facilities, the feasibility of developing a rehabilitation program in the Southwest service area should be explored. Using the Health Systems Plan bed need methodology for estimating the number of comprehensive rehabilitation beds needed, the Southwestern service area could support an 18-bed comprehensive care rehabilitation unit.
2. The service areas identified as having a shortage of Comprehensive Rehabilitation beds are:
   a. *North Central* - indicating a need for two additional comprehensive rehabilitation beds. (Montana Deaconess Medical Center)
   b. *South Central and Eastern Subareas collectively* - indicate a need for 24 rehabilitation beds, representing a deficit of 16 rehabilitation beds. (St. Vincent Hospital)

Table 5 of the Comprehensive Rehabilitaion Services Plan component presents the bed need estimates along with the rehabilitation beds available by subarea. It is assumed that the Eastern subarea populace will access the program at St. Vincent Hospital in the South Central subarea.

COST

The Department of Social and Rehabilitation Services presently reimburses for selected rehabilitation services. The averge charges are:

Occupational Therapy - $30 per hour
Occupational Evaluation - $35 per evaluation
Speech Therapy - $35 per hour
Speech Evaluation - $52.50 per evaluation
Psychological Therapy - $45 per hour
Psychological Evaluation - $102 per evaluation

The Comprehensive Rehabilitation Programs should continue to provide quality comprehensive rehabilitation care at the most reasonable cost possible.

To ensure to some degree the financial viability of a comprehensive rehabilitation program, the licensing and provision of acute care rehabilitation beds is considered necessary. Refer to Table 4 depicting the recent utilization statistics for rehabilitation programs in Montana.

ACCEPTABILITY

All Comprehensive Rehabilitation Programs should establish agreements between the facility offering the program and other agencies or organizations to provide any temporary living arrangements and/or home health care services to the rehabilitation patients and their families, if necessary. Table 2, of the Plan component illustrates the relationship of the rehabilitation programs to long-term care services and home health care services.

QUALITY

1. All Comprehensive Rehabilitation Programs having licensed beds for comprehensive rehabilitation care should comply with either CARF (the Commission on the Accreditation of Rehabilitation Facilities) or JCAH (Joint Commission on the Accreditation of Hospitals) standards for rehabilitation programs within the time periods permitted by the accrediting organization. The CARF and JCAH accreditation for all rehabilitation programs are presented in Table 2.
2. Responsibility for medical direction or supervision of the rehabilitation programs should be vested in a physician member of the medical staff, who, on the basis of training and experience, is knowledgeable in the rehabilitation services offered. Refer again to Table 2, depicting the full-time medical directorships for each program.
3. Any facility proposing to have licensed beds for a Comprehensive Rehabilitation Program should have the following on staff:
   a. Medical Director
   b. Registered Nurse with post-graduate training or experience in rehabilitative medicine.
   c. Physical Therapist
   d. Occupational Therapist
   e. Social Worker
4. At the discretion of the Professional Standards Review Organization (PSRO), quality-related statistics for rehabilitation care should be obtained.

CONTINUITY

1. All rehabilitation programs in Montana as addressed in the Plan component should provide comprehensive rehabilitation services to assure continuity of care. Refer to Table 3 for the comprehensive rehabilitation services available at each facility.
2. Physicians and other health care personnel at all rehabilitation programs should work with respective societal and self-help groups during the rehabilitation of the patient.

APPENDIX 2
BACKGROUND INFORMATION

1.0 AUTHORITY

The Health Planning and Resources Development Act of 1974, known as P.L. 93-641, created a network of health systems agencies throughout the United States responsible for health planning and health resources development. In October of 1979, Titles XV and XVI of P.L. 93-641 were amended to revise and extend the authorities and requirements under these titles for health planning and resources development. The new law, Public Law 96-79, is entitled **Health Planning and Resources Development Amendments of 1979.**

Title XV of P.L. 96-79 addresses health planning and is responsible for establishing 213 "health service areas" nationwide. For each health service area, a health systems agency (HSA) was created. The geographic areas which these agencies represent have been designated by the respective state governors and approved by the Department of Health and Human Services. In Montana, one health systems agency is designated to serve the entire state. Title XVI of P.L. 96-79 dictates the policy for the authorization of loans or grants to states for: 1) the modernization and construction of new outpatient facilities, 2) the conversion of unneeded hospital services and facilities to needed health services and medical facilities, including outpatient and long-term care facilities.

2.0 MISSION AND PURPOSE OF THE HEALTH SYSTEMS AGENCY

Two major requirements of a health systems agency are to establish a Health Systems Plan (HSP) and an Annual Implementation Plan (AIP). The Health Systems Plan identifies the major local health problems, analyzes the resources available to meet the needs of patients experiencing health problems, and proposes improvements in the delivery of these services. The proposed improvements are formulated in terms of goals and objectives for the health care system. The Annual Implementation Plan, a derivative document of the Health Systems Plan, serves a different purpose. The AIP lists objectives for attaining the goals stated in the HSP for a one year period; it is a short-term plan for implementing the HSP. In contrast, the HSP presents a comprehensive overview of both the health of the community and the health care system and recommends long-term solutions for their improvement.

The purposes of P.L. 96-79 are to: 1) facilitate the development of recommendations for a national health planning policy, 2) augment areawide and statewide planning for health services, manpower, and facilities, and 3) authorize financial assistance for the development of resources to further that policy. Therefore, it is the function of the Montana Health Systems Agency, as stipulated by P.L. 96-79, to:

- improve the health of Montana residents
- increase the accessibility (including geographic, architectural, and transportation access), acceptability, continuity and quality of the health services provided
- restrain increases in the costs of health care services
- prevent unnecessary duplication of health resources
- preserve and improve competition in the health service area.

3.0 MONTANA HEALTH SYSTEMS AGENCY RESPONSIBILITY

The Montana Health Systems Agency is responsible for gathering and analyzing data concerning:

- the status (and its determinants) of the health of the residents of its health service area
- the status of the health care delivery system in the area and the use of that system by the residents of the area
- the effect the area's health care delivery system has on the health of the residents of the area
- the number, type, and location of the area's health resources, including health services, manpower, and facilities
- the patterns of utilization of the area's health resources
- the environmental and occupational exposure factors affecting immediate and long-term health conditions.

The Montana Health Systems Agency is required to formulate a Health Systems Plan (HSP) to be revised every three years and an Annual Implementation Plan (AIP). The triennial review and amendment of the Health Systems Plan, as prescribed by P.L. 96-79, probably will not be implemented until July of 1981, after the Department of Health and Human Services has had the opportunity to examine the Health Systems Plan for the purpose of reporting to Congress in 1982.

The Montana Health Systems Agency, under full designation, will establish an Area Health Services Development Fund. From this fund the MHSA may award grants and enter into contracts for planning and developing projects and programs in conformance with the 1981 HSP. These funds cannot be used to build new facilities or to deliver medical services.

Since the MHSA is fully designated it will review and approve or disapprove federal grant monies under:

- the Public Health Service Act
- the Community Mental Health Centers Act and
- the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act.

The review, approval or disapproval of all federal grant funds will be dependent upon the health plan adopted for Montana.

The Montana Health Systems Agency will also review for approval or disapproval the use of federal funds within Montana made through allocations to the state under formula grant programs. Other MHSA responsibilities include:

- coordinating its activities with Professional Standards Review Organizations (PSROs) as well as with other appropriate planning and regulatory agencies
- working with the State Health Planning and Development Agency in the performance of its planning functions
- recommending to the state, on an annual basis, projects for facility modernization and construction
- reviewing, at least every five years all institutional health services in the area.

— Goals
— Objectives
— Long Range Actions

1.0 BACKGROUND
  1.1 SERVICE DEFINITION
  1.2 SERVICES AND SETTINGS
  1.3 TRENDS
    NATIONAL
    REGIONAL
    STATEWIDE
2.0 CURRENT SITUATION
  2.1 AVAILABILITY
  2.2 ACCESSIBILITY
  2.3 COST
3.0 FUTURE RESOURCE REQUIREMENTS
  3.1 AVAILABILITY
  3.2 ACCESSIBILITY
  3.3 COST
4.0 GENERAL ANALYSIS
  4.1 ALTERNATIVES AND ISSUES
5.0 EXCEPTIONS TO THE NATIONAL GUIDELINES

REFERENCES

APPENDIX RECOMMENDED REVIEW CRITERIA

FIGURE 1

NEW FORMAT FOR WRITING HSP COMPONENT

4.0 HEALTH SYSTEMS PLAN COMPONENT FORMAT

All plan components in the 1981-1984 Health Systems Plan are written to reflect the factors of availability, accessibility, and cost. The plan component format is reflected in Figure 1 above.

APPENDIX 3
HEALTH CARE DELIVERY SYSTEM MODEL

1.0 Health System Overview

To provide an overview and a reference point for health plan development, it is necessary to first develop a model depicting the current health care delivery system. The model should address the goals and objectives of the Montana Health Systems Agency and should include the following:

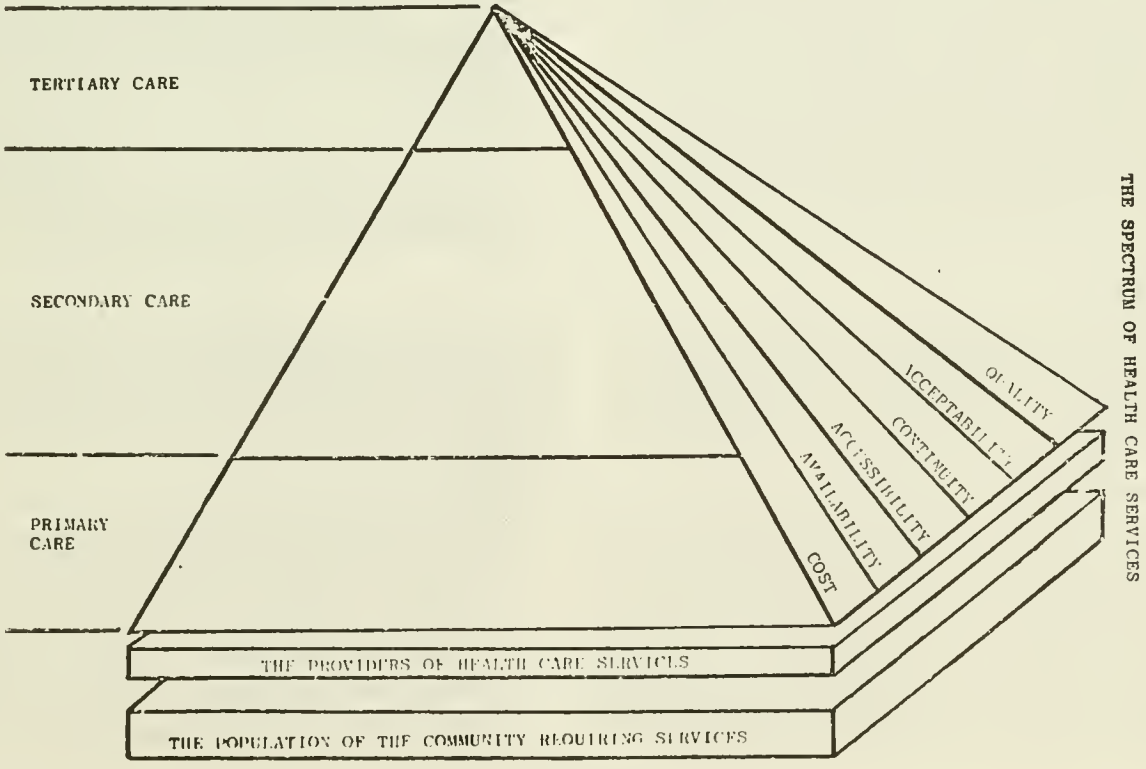
- A reflection of **service orientation** since P.L. 96-79 specifically addresses the necessity to plan for health services. HSA project review requirements, as outlined in Section 1122 of Title XI of the Social Security Act as amended (Section 221 of P.L. 92-603) and P.L. 96-79, also necessitate that the model reflect a service orientation.
- The provision of a systems approach which illustrates a method for integrating and coordinating the required resources to deliver health services and programs.
- A basis for describing the **Health Care System** as contrasted with the **Medical Care System** (generally considered the illness and treatment portion of the Health Care System).
- An incorporation of the following types of services:
  - health promotion and protection
  - prevention and detection
  - diagnosis and treatment
  - habilitation and rehabilitation
  - maintenance and support services
- A reflection of a **regional approach** toward planning to ensure the delivery of a full spectrum of health services to a defined population. In order to use specific services optimally within a region, the regional approach toward planning will have to balance the issues of cost, availability, accessibility, continuity, acceptability and quality.
- An analysis of the system that is understandable to both the consumers and the providers. Rational community participation is required in the planning process in order to establish goals and objectives, as well as in making the final Health Systems Plan decisions.

2.0 The Community Health Care System Model

A model which satisfies most of the above specifications is the community health care system model. The model is visually displayed in Figure 1 as a pyramid. It represents all of the health services available to serve the population of the planning area. The face of the pyramid represents the spectrum of health services as illustrated on the left. Special services are shown toward the top of the pyramid to illustrate that fewer services are required to serve the base planning population. The right side of the pyramid is divided vertically to illustrate six primary factors: cost, availability, accessibility, continuity, acceptability and quality.

Figure 1

The Community Health Care System Model



The planning population is shown at the base of the pyramid. Usually the population enters the health service system at the bottom of the pyramid or through a primary care provider. Ideally, people take active responsibility for their own well-being and health maintenance and, for the most part, stay out of the medical care system. If they require medical care services, they should seek these services beginning at the primary level and progress, through providers, up through the three levels of care (primary, secondary and tertiary). The type, amount and organization of the health care resources depend upon the interaction between the levels of care, the other components, and the patient flow.

3.0 The Four Different Levels of Health Care Services

Using the pyramid presented in Figure 1 as a reference, health care services are divided into four levels of care: pre-medical care, primary care, secondary care and tertiary care. The four levels of care have three characteristics which describe the organization of health services. The first characteristic is functional, i.e., the levels of care provide a method through which services can be catalogued and described by the type of service, by the area, or by the patient utilization patterns. Secondly, the levels of care apply to the planning process as they can be placed in a practical framework for the purpose of description, measurement and analysis. Thirdly, the levels of care describe general characteristics of the integral parts of the system. The levels of care are useful in describing and tracing the process by which patients are referred through the system.

- **Pre-Medical Care**
  Pre-medical care services include measures taken to improve the environment in order to preserve healthful conditions, as well as measures taken by individuals to improve and maintain their own levels of well-being. The environmental components include public services such as air pollution control, basic sanitation measures, water pollution control, solid waste and social services. The personal measures comprise those actions taken by individuals to improve or maintain their levels of health. Personal measures include stress control, weight control, exercise, nutrition, and personal safety actions. Ideally, it is in the pre-medical care level of the health system that individuals should concentrate their attention. Individuals enter the next level of care when seeking preventive medical services such as immunizations, or when they become ill and require medical attention.
- **Primary Care**
  It is at the primary care level that patients should enter the medical care delivery system. Primary care focuses on ambulatory care and those services which require a high frequency of utilization, such as routine preventive care, diagnosis and treatment of minor physical and mental illnesses, patient education, management of chronic conditions, routine dental care, and certain rehabilitative services.

  General practitioners, internists, pediatricians, and obstetricians usually administer primary medical care services. These services are also provided by other health professionals through public health departments, county clinics, hospital emergency rooms, community health centers, group practices, optometrists, dentists, voluntary health agencies, out-patient rehabilitation centers, etc. Primary care services should be available as close as possible to the consumer's home.
- **Secondary Care**
  Secondary care can be viewed as the middle ground both in terms of medical treatment and in frequency of patient utilization. Secondary care services require a greater population than primary care services to justify their development since they are utilized less frequently by the general population and usually require substantial capital investment. Even though the services are fewer in number, they will always be found within the health service area.

  Individuals requiring this level of care generally have health problems serious or complex enough to require a visit to a specialist and/or a health facility (i.e., a general hospital, nursing home or community mental health center).

  The community hospital serves as one of the major facilities for secondary care. The community hospital provides trained personnel, special diagnostic equipment, and inpatient services. Hospital services typically provided at the secondary care level include inpatient services for general surgery, medical treatment, and psychiatric diagnosis and treatment. Personal care, skilled and intermediate care, and boarding comprise the spectrum of long-term care services. The secondary level of care may also include those services generally described as residential care, day care, and rehabilitation. Other services which fall in this category are mental health, mental retardation and developmental disabilities and substance abuse services.
- **Tertiary Care**
  Tertiary care services are those special services that because of complexity, cost, and/or relatively low levels of utilization are planned to be located within a large catchment area. In some cases, these services may not be located in a health service area, either because the area is too small or because the service is too specialized. The tertiary level services represent a continuum of preventive, diagnostic, treatment and rehabilitative services for the acutely ill patient, as well as specialized services for patients with chronic, complicated and catastrophic illnesses. Tertiary care includes highly sophisticated diagnostic and therapeutic procedures such as radiation therapy, renal dialysis, and major hospital trauma emergency department services. These services are typically provided in large referral hospitals.

  Patients are usually directed to highly specialized services either because the disease or illness is difficult to diagnose or rare in occurrence, or because the personnel and technical resources available to treat the disease process are relatively scarce and/or expensive.

4.0 Criteria Considered for Provision of Service

The right-hand side of Figure 1 shows the six factors to be considered in the provision of health services. They are also the factors around which criteria and standards are usually developed. They include:

- **Cost**
  The expectations concerning results of P. L. 96-79 are high in areas such as controlling rising costs and removing financial barriers to care. The major tool the MHSA can use to influence these factors is the review of capital expenditures at the tertiary and secondary service levels. The immediate planning responsibilities of the MHSA, with respect to financial resources, are oriented toward preparing a plan which will allow for review, comment, and recommendation on capital expenditures for facilities and equipment by institutions.

The major questions to be addressed in reviews on services involving major capital expenditures are: 1) can and should the service being developed be self-supporting in a reasonable period of time? (Some services are provided in response to a "social need" and must be continually subsidized), and 2) is the service going to duplicate existing services currently being provided?

- **Availability**
  Availability deals with the supply and types of health services that can be produced given the supply and feasible allocation of resources (personnel, equipment, facilities and finances) to produce those services. A goal of the MHSA is to develop health services offered to Montanans in medically underserved areas. Inequitable resource distributions and inaccessibility of health care services are particularly evident in rural areas.
- **Accessibility**
  Accessibility deals with the ability of the population or a segment of the population to obtain available health services. This ability is determined by economic, temporal, locational, architectural, cultural, organizational and informational factors. For example, rural areas have fewer services available and rural residents must travel greater distances to gain access to health care. In addition, widely dispersed populations and communities without an organized health care system face a situation in which they are less able to plan and compete for medical resources and services.

- **Continuity**
  Continuity is concerned with the extent of effective coordination of services provided to individual patients and the community over time within health care settings.

  Health services should follow a logical progression from detection, through diagnosis and treatment, to follow-up. Screening programs should be set up so that if a suspected illness is spotted it can be diagnosed and treated. Medical specialists should strive to keep the primary physician informed on the patient's progress. Persons with chronic diseases should be followed after the initial treatment is given and the initial episode of disease overcome. All of these are aspects of continuity.
- **Acceptability**
  Acceptability is the level of satisfaction expressed by consumers of services and providers of services with the availability, accessibility, cost, quality and continuity of the health care system.

  Patient satisfaction is considered for several reasons. First, patients provide the social mandate for the very existence of health care. Second, consideration of patient satisfaction preserves the humane character of health care (caring) along with the biomedical and scientific features (curing). Finally, patients are active participants in promoting or retarding the healing process. The ultimate success of many health care interventions is dependent upon the cooperation of the patient. Patient cooperation, in turn, is dependent to some degree on the level of the patient's satisfaction and the value he or she perceives in the care.

- **Quality**
  Quality is the degree to which services provided are properly matched to the needs of the population, are technically correct, and achieve beneficial impact. Quality can be considered in three dimensions: 1) the structural aspects of resources and services; 2) the process of producing and delivering services; and, 3) the outcome of services on health status, environment, and/or behavior.

APPENDIX 4
STATISTICAL DESCRIPTION OF THE MONTANA SERVICE AREA

1.0 Introduction

The purpose of this section is to present summary information of the statistics most used in health planning and to give the reader an overview of the types of problems faced in planning health services in Montana. The statistics can be generally grouped into five areas:

1) population estimates and projections
2) socio-economic indicators
3) geographical descriptions
4) economic characteristics and
5) health status statistics.

Each of the tables presented here is extracted from published documents. More refined statistics, if needed, can be found in the original documents.

Information describing the health care delivery system, resources currently available, and utilization statistics are found in the service components which comprise the bulk of the plan. More detailed data on these services can be obtained from the Montana Health Data Management System. At the present time the Hospital Annual Reports, Long-Term Facilities Annual Reports, Physician Manpower, and Dental Manpower information are in this data base.

Data summarizing the costs of health services is currently unavailable. The State Health Plan currently being developed by the State Health Planning and Development Agency will contain sections addressing health care costs in Montana.

2.0 Population Characteristics

The Health Systems Plan serves as a blueprint for the health care delivery system five years in the future. Consequently, projections have to be made of the number of people who will be needing health care services in 1985. Throughout this document, the HSA has used 1978 estimates furnished by the Bureau of the Census to depict the current situation. To estimate population changes, projections for 1985, published by the Department of Community Affairs, were used. Both estimates used counties as their geographical base. Tables 1 through 5 compare the 1970 census population with the 1980 estimates and 1990 projections for each county and subarea.

It is well documented that different age groups use different health services. For example, children under five could be the primary target for immunizations, while females in the child-bearing years (generally between the ages 15 and 44) need prenatal and postnatal care. Males between 45 and 64 are the most prone to heart attacks and the elderly (over 65 years of age) are the primary users of long-term care facilities and home health services. Table 6 shows the estimated 1975 and projected 1985 populations for four age groups by county and subarea. These estimates were prepared by the Department of Community Affairs, State of Montana.

Finally, the largest racial minority in Montana is the Native American or American Indian, constituting 3.9% of the population. Estimates of the number of Native Americans are presented in Table 7. These estimates were prepared for the Coordinator of Indian Affairs, Office of the Governor, Helena, Montana. No 1985 projections on the number of Native Americans in Montana are available.

3.0 Socio-economic Indicators

A number of socio-economic indicators are used to determine whether or not a particular community is eligible for public health service grants. Currently there are four designations used by the federal government to determine program eligibility. These are:

1) Critical Manpower Shortage Areas -
   uses various provider to population ratios (for physicians, dentists, optometrists, psychiatrists, podiatrists, pharmacists, and veterinarians).
2) Medical Shortage Areas -
   uses a combination of physician to population ratios, percent of population over 65, percent of population below the poverty level, and infant mortality rate.
3) High Infant Mortality Area -
   uses a 5 year infant mortality rate.
4) High Migrant Impact Area -
   uses the number of migrants who traditionally come to the area.

4.0 Geographical, Climatic and Transportation Description in Montana.

Geographic and climatic conditions in a state such as Montana are important in planning health services because of their impact upon accessibility.

To emphasize the constraints under which health services are delivered in Montana and to help explain why they have developed as they have, this section is presented.

First, the current population density (people per square mile) is presented in Figure 1. In comparison with other states, Montana has an extremely small population density. Half of Montana's counties have less than 2.8 persons per square mile; three-fourths of the counties have less than 4.4 persons per square mile.

One of the reasons for this small population base lies in the topography of Montana. As shown in Figure 2, the topography varies from the mountain crests characteristic of the western third of the state, to the elevated plains, low mountains, and erosion valleys in the central portion, to the flat terrain evident in the east. Montana, by Spanish definition, means "mountain".

The Northern Rocky Mountain region largely dominates the topography in the western third of the state. Within this boundary and to the north, the mountain ranges and narrow river valleys run parallel to one another in a northwest-southeast direction. A structural feature running in a north-south direction, the Rocky Mountain trench, harbors Flathead lake. This lake is one of the largest natural fresh water bodies in the United States. The southern portion of the mountainous area offers a random pattern of mountain

TABLES 1 through 5

Census Population

1970 Census Figures, 1980 Preliminary Census Figures and 1985 Projections of Montana's Population by County.

County	1970[1]	1980[2]	1990[3]
NORTHWESTERN			
Lincoln	18,063	17,900	18,300
Flathead	39,460	48,900	55,600
Sanders	7,093	8,600	8,900
Lake	14,445	18,000	18,900
Mineral	2,958	3,700	3,900
Ravalli	14,409	20,500	22,700
Missoula	58,263	69,500	78,300
TOTALS	154,691	187,100	206,600
NORTH CENTRAL			
Glacier	10,783	11,200	11,600
Toole	8,839	5,300	5,400
Pondera	6,611	7,100	6,800
Teton	6,116	6,300	6,200
Cascade	81,804	85,600	93,000
Chouteau	6,473	6,300	6,100
Hill	17,358	18,200	19,200
Blaine	6,727	6,700	6,500
Liberty	2,359	2,500	2,300
TOTALS	147,070	149,100	157,100

County	1970[1]	1980[2]	1990[3]
SOUTHWESTERN			
Beaverhead	8,187	8,200	8,200
Madison	5,014	5,700	5,800
Gallatin	32,505	40,200	46,300
Lewis & Clark	33,281	40,900	48,800
Broadwater	2,526	3,100	3,100
Jefferson	5,238	7,300	8,200
Meagher	2,122	2,300	2,300
Silver Bow	41,981	40,900	40,500
Deer Lodge	15,652	13,500	13,000
Powell	6,600	8,000	8,300
Granite	2,737	2,700	2,800
Park	11,197	12,800	13,500
TOTALS	167,040	185,600	200,800
SOUTH CENTRAL			
Fergus	12,611	13,300	13,300
Petroleum	675	700	600
Judith Basin	2,667	2,700	2,400
Wheatland	2,529	2,500	2,500
Golden Valley	931	1,000	900
Musselshell	3,734	4,400	4,600
Sweet Grass	2,980	3,300	3,700
Stillwater	4,632	5,500	6,800
Carbon	7,080	8,900	9,700
Big Horn	19,057	11,400	13,400
Yellowstone	87,367	109,700	136,400
TOTALS	144,263	163,400	194,300

County	1970[1]	1980[2]	1990[3]
EASTERN			
Valley	11,471	13,300	13,000
Daniels	3,083	3,100	3,700
Sheridan	5,779	5,400	5,200
Roosevelt	10,365	10,700	11,100
McCone	2,875	2,600	2,500
Garfield	1,796	1,800	1,800
Richland	9,837	10,400	10,200
Dawson	11,269	11,200	11,200
Wibaux	1,465	1,500	1,500
Rosebud	6,032	10,100	11,100
Treasure	1,069	1,200	1,000
Powder River	2,862	2,600	2,600
Custer	12,174	13,100	13,500
Prairie	1,752	1,800	1,700
Phillips	5,386	5,500	5,200
Fallon	4,050	4,100	4,100
Carter	1,956	1,800	1,700
TOTALS	93,221	100,209	101,100

1) US Bureau of the Census Reports, 1970
2) US Bureau of the Census Preliminary 1980
3) Montana Department of Community Affairs Projections medium series, county totals, 1980.

TABLE 6

1975 and 1985 Population Projections by Age Group and County.

SOURCE:
Montana Population Projections 1975-2000,
Division of Research & Information Systems, Montana Department of Community Affairs, August, 1977, (Medium Series).

TABLE 6

COUNTY	TOTAL POP.		AGE 0 - 4		AGE 5 - 17		AGE 18 - 64		AGE 65+	
	1975	1985	1975	1985	1975	1985	1975	1985	1975	1985
Northwestern										
Flathead	44,600	56,402	3,611	4,679	11,754	12,791	24,640	33,309	4,595	5,623
Lake	17,100	19,876	1,425	1,603	4,434	4,551	8,906	11,210	2,335	2,512
Lincoln	16,500	16,589	1,433	1,285	4,587	3,634	9,334	10,108	1,146	1,562
Mineral	3,500	4,325	295	373	972	1,036	1,967	2,610	266	306
Missoula	64,600	78,171	5,106	6,240	14,317	14,404	40,199	51,370	4,978	6,157
Ravalli	18,400	21,142	1,321	1,630	4,523	4,483	9,728	11,886	2,828	3,143
Sanders	8,100	9,588	615	750	2,061	2,141	4,350	5,539	1,074	1,158
Totals	172,800	206,093	13,806	16,560	42,648	43,040	99,124	126,032	17,222	20,461
North Central										
Blaine	6,800	7,191	617	631	1,827	1,639	3,603	4,191	753	730
Cascade	83,900	88,274	7,668	8,195	21,061	19,503	47,921	52,875	7,250	7,701
Chouteau	6,300	6,491	496	551	1,540	1,314	3,503	3,845	761	781
Glacier	11,100	11,961	1,188	1,041	3,361	3,142	5,635	6,631	916	1,147
Hill	17,900	19,641	1,552	1,694	4,392	4,046	10,389	11,960	1,567	1,941
Liberty	2,500	2,697	190	228	671	562	1,421	1,636	218	271
Pondera	6,900	7,462	583	647	1,868	1,673	3,718	4,329	731	813
Teton	6,500	7,875	458	610	1,659	1,710	3,582	4,621	801	934
Toole	5,400	5,174	398	412	1,416	1,079	2,994	3,048	592	635
Totals	147,300	156,766	13,150	14,009	37,795	34,668	82,766	93,136	13,589	14,953
Southwestern										
Beaverhead	8,300	9,095	699	868	1,849	1,798	4,862	5,485	890	944
Broadwater	2,800	3,428	206	287	732	771	1,524	2,002	338	368
Deer Lodge	15,200	15,482	1,144	1,245	3,482	2,991	8,630	9,071	1,944	2,175
Gallatin	37,300	44,058	2,851	3,527	7,128	7,342	24,304	29,510	3,017	3,679
Granite	2,700	2,801	206	236	638	564	1,528	1,600	328	401
Jefferson	6,700	8,169	539	684	1,724	1,869	3,844	4,948	593	668
Lewis & Clark	36,900	46,931	3,008	3,865	9,247	10,526	21,020	28,090	3,625	4,450
Madison	5,800	5,556	396	422	1,367	1,072	3,163	3,223	874	839
Meagher	2,300	2,216	174	173	527	429	1,327	1,326	272	288
Park	12,100	14,590	839	1,143	2,778	3,088	6,768	8,472	1,715	1,887
Powell	7,500	9,015	568	729	1,865	1,983	4,373	5,571	694	732
Silver Bow	43,000	44,457	3,422	3,581	10,618	9,335	23,847	26,555	5,113	4,986
Totals	180,600	205,798	14,052	16,760	41,955	41,768	105,190	125,853	19,403	21,417
South Central										
Big Horn	10,900	12,161	1,221	1,055	3,138	3,162	5,780	7,053	761	891
Carbon	7,800	8,889	495	672	1,734	1,796	4,213	5,010	1,358	1,411
Fergus	13,000	13,617	927	1,040	3,232	2,705	6,892	7,811	1,949	2,061
Golden Valley	900	917	59	70	188	160	510	534	143	153
Judith Basin	2,700	2,745	193	233	646	531	1,445	1,530	416	451
Musselshell	4,200	4,796	297	373	963	1,008	2,292	2,761	648	654
Petroleum	700	678	48	50	178	144	425	435	49	49
Stillwater	5,200	6,090	351	472	1,231	1,290	2,874	3,533	744	795
Sweetgrass	3,000	2,897	210	221	630	540	1,628	1,657	532	479
Wheatland	2,400	1,923	165	126	557	347	1,309	1,096	369	354
Yellowstone	97,300	126,106	7,936	10,456	24,383	28,134	56,961	76,914	8,020	10,602
Totals	148,100	180,819	11,902	14,768	36,880	39,817	111,697	108,334	14,989	17,900
Eastern										
Carter	1,900	1,882	137	142	433	361	1,059	1,120	271	259
Custer	12,000	14,642	917	1,212	2,992	3,006	6,593	8,625	1,498	1,799
Daniels	3,100	3,143	214	259	729	600	1,699	1,808	458	476
Dawson	10,700	13,067	937	1,156	2,822	2,757	5,954	7,868	987	1,286
Fallon	4,000	4,326	342	390	1,049	915	2,206	2,549	403	472
Garfield	1,700	1,784	140	139	410	352	982	1,072	168	221
McCone	2,700	2,613	211	201	710	532	1,488	1,552	291	328
Phillips	5,400	5,757	435	471	1,417	1,243	2,830	3,302	718	741
Powder River	2,400	2,285	207	174	666	499	1,331	1,406	196	206
Prairie	1,900	1,915	123	140	408	352	1,077	1,092	292	331
Richland	9,900	12,093	797	998	2,596	2,585	5,407	7,094	1,110	1,416
Roosevelt	10,300	11,272	1,013	1,005	2,883	2,711	5,399	6,412	1,005	1,144
Rosebud	9,700	11,230	943	931	2,680	2,809	5,168	6,531	909	959
Sheridan	5,400	5,144	371	382	1,383	1,011	2,931	2,946	715	805
Treasure	1,200	1,236	94	105	318	272	653	721	135	138
Valley	13,200	16,325	1,160	1,391	3,700	3,935	7,297	9,858	1,043	1,141
Wibaux	1,500	1,538	121	135	386	319	806	892	187	192
Totals	97,000	110,252	8,162	9,231	25,582	24,259	52,880	64,848	10,386	11,914

TABLE 7

U. S. Census Count of Montana Population, By Race and County - 1970

	ALL RACES	INDIAN		OTHER MINORITY	
	No.	No.	Pct.	No.	Pct.
Beaverhead	8,187	31	0.4	18	0.2
Big Horn	10,057	3917	38.9	132	1.3
Blaine	6,727	1562	23.2	22	0.3
Broadwater	2,526	22	0.9	1	0.03
Carbon	7,080	29	0.4	29	0.4
Carter	1,956	3	0.2	6	0.3
Cascade	81,804	1509	1.8	1517	1.8
Chouteau	6,473	153	2.4	14	0.2
Custer	12,174	65	0.5	58	0.5
Daniels	3,083	16	0.5	2	0.06
Dawson	11,269	50	0.4	23	0.2
Deer Lodge	15,552	240	1.5	188	1.2
Fallon	4,050	13	0.3	4	0.09
Fergus	12,611	65	0.5	43	0.3
Flathead	39,460	327	0.8	147	0.4
Gallatin	32,505	99	0.3	203	0.6
Garfield	1,796	0	-	2	0.1
Glacier	10,783	4576	42.4	40	0.4
Golden Valley	931	1	0.1	0	-
Granite	2,737	20	0.7	1	0.03
Hill	17,358	1607	9.3	154	0.9
Jefferson	5,238	64	1.2	23	0.4
Judith Basin	2,667	7	0.3	4	0.1
Lake	14,445	2199	15.2	44	0.3
Lewis & Clark	33,281	486	1.5	169	0.5
Liberty	2,359	9	0.4	3	0.1
Lincoln	18,063	209	1.2	39	0.2
Madison	2,875	17	0.6	1	0.03
McCone	5,014	78	1.6	14	0.3
Meagher	2,122	12	0.6	13	0.6
Mineral	2,958	16	0.5	6	0.2
Missoula	58,263	660	1.1	282	0.5
Musselshell	3,734	2	0.05	3	0.08
Park	11,197	32	0.3	27	0.2
Petroleum	675	2	0.3	0	-
Phillips	5,386	258	4.8	13	0.2
Pondera	6,611	546	8.3	10	0.2
Powder River	2,862	34	1.2	5	0.2
Powell	6,660	98	1.5	23	0.3
Prairie	1,752	13	0.7	0	-
Ravalli	14,409	142	1.0	135	0.9
Richland	9,837	40	0.4	20	0.2
Roosevelt	10,365	3110	30.0	54	0.5
Rosebud	6,032	1820	30.2	9	0.1
Sanders	7,093	384	5.4	12	0.2
Sheridan	5,779	42	0.7	7	0.1
Silver Bow	41,983	359	0.9	147	0.3
Stillwater	4,632	23	0.5	14	0.3
Sweet Grass	2,980	2	0.06	0	-
Teton	6,116	45	0.7	5	0.08
Toole	5,839	63	1.1	5	0.08
Treasure	1,069	1	0.09	4	0.4
Valley	11,471	972	8.5	41	0.4
Wheatland	2,529	17	0.7	5	0.2
Wibaux	1,465	0	-	1	0.06
Yellowstone	87,367	1063	1.2	539	0.6
Yellowstone Nat'l. Park	64	0	-	0	-
Totals	694,409	27,130	3.9%	4,281	0.6%

NOTE: Other minority includes Negro, Japanese, Chinese, Filipino and other races, but does not include Spanish-surnamed or Spanish-speaking Americans.

SOURCE: 1970 U. S. Census.

TABLE 8

Selected Statistics, Montana

Subarea & County	5 Year Infant Mortality Rate (1973-1977)	% Population Over 65 (1975 est.)	% Population Below Poverty Level (1970)	Fertility Rate (1977)
Northwestern				
Lincoln	15.2	6.9	7.1	87.1
Flathead	19.2	10.3	12.9	102.1
Sanders	22.1	13.2	14.0	126.2
Lake	13.9	13.6	22.3	132.8
Mineral	15.3	7.6	8.4	119.1
Ravalli	17.0	15.4	18.6	107.2
Missoula	12.0	7.7	11.2	85.2
North Central				
Glacier	28.4	8.2	29.5	131.6
Toole	6.6	11.0	11.6	89.9
Pondera	14.4	10.6	18.2	106.9
Teton	14.2	12.3	12.0	20.2
Cascade	18.1	8.6	10.9	91.3
Chouteau	17.7	12.1	11.6	86.9
Hill	16.8	8.8	14.8	93.4
Blaine	11.0	11.1	31.4	117.3
Liberty	30.0	8.7	8.4	122.9
Southwestern				
Beaverhead	6.2	10.7	17.4	90.2
Madison	9.0	15.1	18.1	84.4
Gallatin	14.0	8.1	11.1	76.4
Lewis & Clark	17.0	9.8	8.8	92.2
Jefferson	28.2	8.8	13.4	96.4
Broadwater	34.5	12.1	23.1	51.7
Meagher	26.2	11.8	24.9	84.5
Silver Bow	19.6	11.9	11.4	82.9
Deer Lodge	11.5	12.8	10.8	73.7
Powell	24.8	9.2	9.5	105.4
Granite	28.7	12.1	15.8	72.1
Park	10.2	14.2	14.3	93.3
South Central				
Fergus	11.7	15.0	14.9	84.5
Petroleum	0.0	7.0	17.8	91.7
Judith Basin	6.1	15.4	15.2	65.6
Wheatland	38.6	15.4	16.3	97.3
Golden Valley	13.3	15.9	11.7	103.0
Musselshell	27.6	15.4	19.2	128.0
Sweetgrass	4.9	17.7	23.6	106.6
Stillwater	11.1	14.3	13.7	106.8
Carbon	5.5	17.4	19.2	109.7
Big Horn	27.7	7.0	25.3	132.0
Yellowstone	15.2	8.2	12.1	96.0
Eastern				
Valley	14.4	7.9	16.8	98.6
Daniels	7.8	14.8	10.1	101.0
Sheridan	13.2	13.2	11.4	87.1
Roosevelt	26.3	9.8	23.3	114.0
McCone	19.6	10.8	13.8	87.3
Garfield	5.7	9.9	17.3	144.7
Richland	14.0	11.2	13.8	114.6
Dawson	15.6	9.2	8.4	88.7
Wibaux	0.0	12.5	15.2	118.5
Rosebud	13.4	9.4	25.8	204.9
Treasure	19.2	11.2	22.8	75.0
Custer	15.9	12.5	11.6	98.1
Powder River	4.0	8.2	13.0	81.1
Prairie	7.1	15.4	19.1	93.5
Phillips	14.0	13.3	16.6	103.6
Fallon	5.9	10.1	12.6	95.8
Carter	15.7	14.3	17.5	59.9

SOURCES:

1) Five-Year Infant Mortality Rates - Bureau of Records & Statistics, State Department of Health & Environmental Sciences, **Montana Vital Statistics**, 1976.
2) Percentage Population Over 65 - Montana Department of Community Affairs, Division of Research & Information Systems, **Montana Population Projections**, 1975-2000.
3) Percentage Population Below the Poverty Level -U. S. Bureau of the Census. Census of Population 1970 **General Social & Economic Characteristics**, Final Report, PC (1)-C 28 Montana.
4) Fertility Rate - Unpublished data from the Maternal & Child Health Bureau, State Department of Health & Environmental Sciences, 1976.

ranges with generally wider separating valleys. Both the mountains and the valleys are higher in the south. Highways and railroads throughout western Montana generally follow valley floors and the lowest mountain passes.

Extremes in elevation levels are primarily evident in the western portion of Montana, ranging from 12,799 feet to only 1,800 feet above sea level. Although the mountains in Montana are less subject to earthquake activity than the geologically young and active mountains found in other states, the region has experienced a number of destructive earth tremors. The most recent earthquake occurred in the Madison River region of southwestern Montana in 1959 and caused a considerable amount of local physiographic change.

Within central Montana the topography consists of isolated low mountain groups: the Highwoods, Bearpaws, Little Rockies, Judith and Big Snowys. In contrast to these mountains are the flat or rolling plains surrounding them.

East of a line from the Little Rocky Mountains to the Pryors is a topography dominated by plains. Toward the northeast the elevations drop gradually until at the point where the Missouri River and Yellowstone River exit the state, the elevation is some 2,000 feet above sea level. The rivers in this region generally have narrow flood plains, and some have valleys measuring one hundred to two hundred feet in depth.

The "badlands" are scoured landscapes with steep slopes, narrow divides, and closely spaced gullies created by the erosional action of joining rivers. Continental Pleistocene glaciation across the northern portion of the plains, north of the Missouri River, has leveled the landscape.

In a state as large and varied in topography as Montana, various climatic controls such as latitude, distance from the ocean, and the presence or absence of mountains, interact in many different ways to contribute to a variety of climatic conditions. The northeast corner of Montana generally is the coldest due to intruding arctic air from the north and northeast. The movement of arctic air into Montana can cause drastic changes in the temperature. In 1916, the temperature at Browning went from 44 degrees F to minus 56 degrees F in a period of twenty four hours, a drop of 100 degrees (44° to -56°). The coldest temperature ever recorded in Montana, as well as in the forty-eight contiguous states, was -70° F near Rogers Pass in January, 1954. The eastern half of Montana is usually the warmest during the summer months, averaging more than 72° F.

The average annual precipitation in Montana ranges from less than twelve inches in the south-central portion of the state to over one hundred inches in the mountains of the west. Overall, the State of Montana receives less than twenty inches of precipitation annually. The extreme western portion of Montana receives more than half of its precipitation in the winter; most of the rest of the state receives at least half of its precipitation during the summer, while northeastern Montana receives nearly eighty-five percent of its precipitation during the growing season.

The relationship of environmental characteristics and geographical features to the arrangement and delivery of health services is extremely important. The varied and harsh topographical and climatic conditions evident in Montana frequently make travel, especially during the winter months, difficult and at times impossible in certain regions. Many roads and highways are closed intermittently during heavy snowfall and blizzard conditions. Air travel too is often restricted during winter months because of poor visibility. Because of the travel restrictions imposed by natural causes, the patterns of utilization of health services are affected. In Montana, county and private roads equal or exceed the improved highways in terms of actual mileage. Highway density is the lowest in northcentral and

TABLE 9

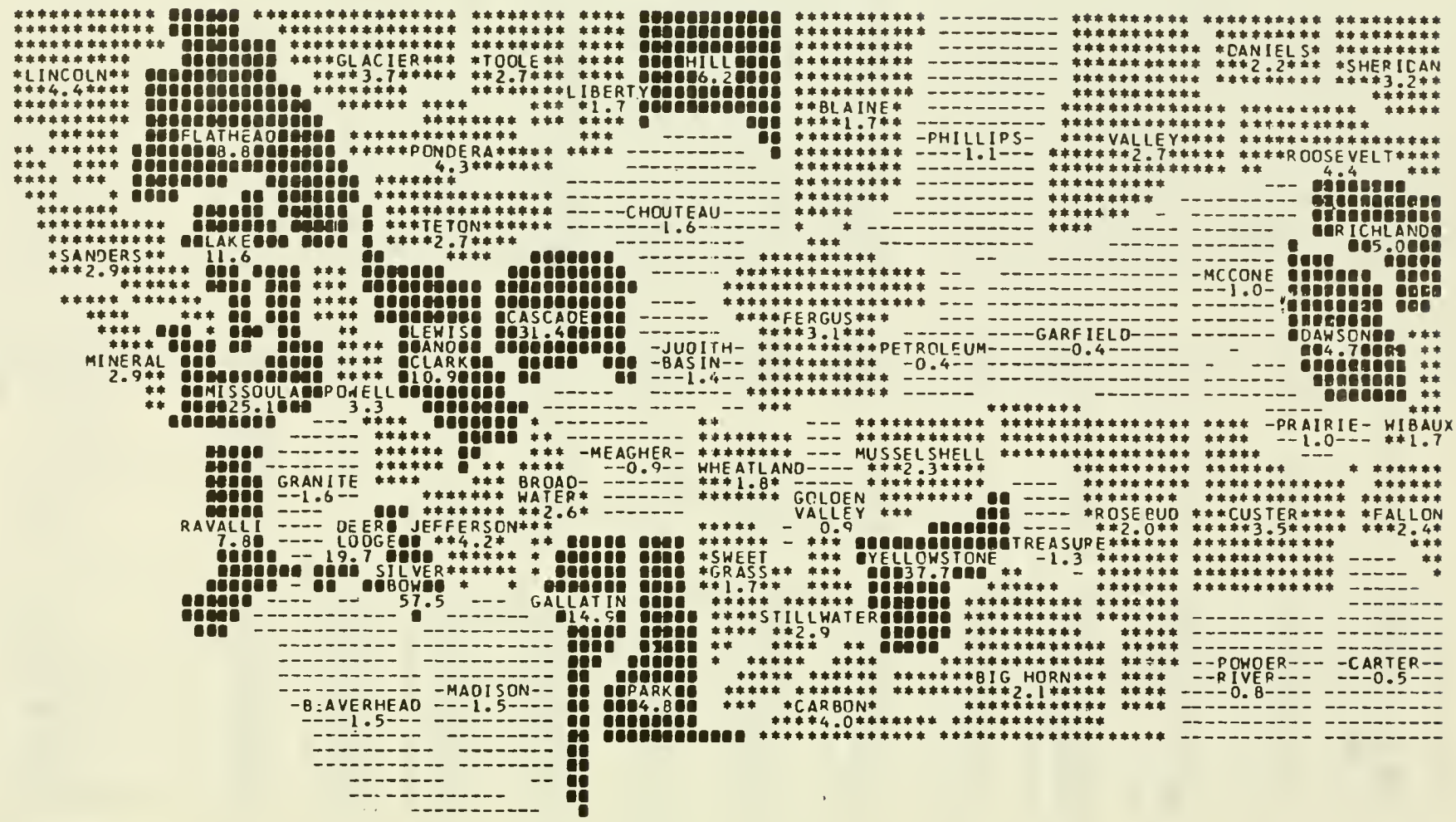
Employment Characteristics by County and Subarea - Selected Years

County	Per Capita Personal Income Residence Adjusted Dollars				Percent in Labor Force – 1970			Employed Persons – 1970			Civilian Labor Force	
	1959	1965	1970	1974	Female 16 yrs. & over	Male 18-24 Years	Male 65 yrs. & over	% in manufac. indust.	% in white-clr. occupatn.	% governmt. workers	1970 % unemployed	1973 % unemployed
Northwestern												
Flathead	2047	2401	3181	4506	33.2	72.3	14.7	23.0	43.3	15.8	9.8	6.4
Lake	1437	1961	2530	3462	34.3	65.7	25.0	12.1	38.0	18.9	6.5	6.1
Lincoln	2262	2645	3129	3897	30.3	85.0	21.4	27.8	34.1	15.3	10.3	9.9
Mineral	1409	2021	2788	3785	43.5	73.8	14.9	24.7	35.5	31.7	13.9	5.6
Missoula	2157	2626	3324	4548	42.2	54.0	22.4	12.1	52.5	24.4	7.6	5.8
Ravalli	1719	1989	2782	3369	32.6	74.0	22.8	13.0	38.8	23.0	7.9	7.7
Sanders	1702	2237	2608	4020	32.1	78.7	18.1	21.6	36.3	25.4	11.9	7.3
Southwestern												
Beaverhead	2286	2239	3138	4070	40.6	64.8	29.2	4.6	39.9	24.6	5.7	2.2
Broadwater	1979	2479	3110	4673	35.8	84.4	15.1	10.5	44.3	18.0	3.6	4.4
Deer Lodge	1609	2250	2997	4227	34.9	74.9	8.7	33.8	27.6	28.3	7.0	6.8
Gallatin	1896	2059	3194	4622	40.4	46.5	30.2	6.4	52.6	34.5	5.4	3.3
Granite	1950	2308	2533	3362	26.7	57.4	20.0	19.4	27.8	21.1	5.1	4.8

Jefferson	1706	1764	2622	3226	37.3	46.8	28.3	4.7	38.3	41.6	4.	6.2
Lewis & Clark	2365	2878	4085	5349	51.5	74.2	30.0	5.8	62.3	32.9	4.	4.6
Madison	1978	2607	3081	3102	40.0	69.5	29.2	1.7	25.1	21.0	5.7	3.2
Meagher	2336	2814	3361	4242	33.6	81.7	52.8	19.7	21.1	15.7	6.7	2.4
Park					40.1	78.5	21.4	5.0	37.7	15.0	5.6	4.2
Powell	1956	2268	2973	4089	38.7	58.8	20.9	13.2	34.0	28.3	4.7	5.1
Silver Bow	2098	2756	3476	4866	36.8	77.0	18.0	6.3	46.4	15.8	6.1	7.3
North Central												
Blaine	1686	2035	3479	5010	34.5	70.7	29.2	2.7	34.3	21.7	10.6	4.2
Cascade	2288	2638	3755	4947	40.2	88.7	17.6	12.3	52.3	18.9	6.5	5.4
Chouteau	2673	3539	5443	11878	29.0	81.9	48.5	2.8	30.6	18.2	1.9	2.5
Glacier	1622	1893	2893	4572	37.7	66.0	21.5	2.8	44.3	26.6	12.6	6.3
Hill	2108	2412	3812	6333	40.8	62.9	29.0	3.5	45.1	21.3	4.3	3.8
Liberty	3299	3009	6966	8669	37.1	84.9	22.0	1.4	38.9	25.3	0.5	2.4
Pondera	1932	2598	4454	6206	34.4	82.3	37.5	3.1	38.7	17.6	3.2	4.6
Teton	1950	2787	4337	5406	29.5	88.8	33.1	4.2	33.0	16.7	4.2	3.4
Toole	2016	2678	4922	7679	35.6	76.7	31.5	4.2	41.1	22.5	3.6	3.8
South Central												
Big Horn	1676	1826	3132	3542	31.4	75.7	32.1	10.0	38.6	29.1	4.6	6.1
Carbon	1606	1924	3472	4363	30.1	67.2	16.8	5.0	36.5	16.6	5.2	4.0
Fergus	1922	2192	3452	5060	36.0	85.5	22.6	5.0	42.9	17.1	4.9	3.0
Golden Valley	1991	2341	3407	3616	45.8	41.5	53.4	—	23.0	23.0	4.7	4.9
Judith Basin	2279	2713	4157	5801	28.4	77.8	36.7	0.5	21.5	18.8	2.8	1.8
Musselshell	1573	2170	3268	3877	37.2	78.9	29.5	3.8	27.4	14.0	7.4	4.4
Petroleum	2090	2362	3729	2262	26.4	*	*	— —	27.2	21.8	— —	2.1
Stillwater	1842	2188	3457	4297	26.9	69.8	25.0	6.0	39.0	14.7	5.4	2.6
Sweet Grass	1730	2211	3477	3967	40.3	82.3	33.1	3.3	35.2	14.9	2.1	2.4
Wheatland	1880	2514	3613	4513	38.1	75.5	50.9	2.7	35.6	16.2	1.5	2.0
Yellowstone	2340	2669	3751	5313	42.2	70.1	24.1	8.7	53.8	14.5	5.8	3.7
Eastern												
Carter	2402	2703	3814	4846	33.8	84.2	62.0	2.9	24.3	21.6	2.4	1.9
Custer	2003	2448	3576	4588	42.2	66.3	26.1	2.7	48.7	21.9	4.7	3.6
Daniels	1509	3399	4637	10259	31.9	93.3	15.8	0.6	32.8	16.4	0.4	2.4
Dawson	1553	2241	3343	5692	39.1	79.5	31.7	3.9	39.7	15.1	3.	2.8
Fallon	1667	1967	3159	5061	33.9	89.0	31.4	1.4	33.8	13.6	5.4	1.9
Garfield	2138	2740	3977	5218	40.3	100.0	54.8	2.5	28.7	19.4	2.3	1.5
McCone	1307	2753	3356	10399	27.5	81.8	50.3	1.0	31.7	15.5	2.3	2.1
Phillips	1726	2279	3963	5788	38.7	81.1	18.2	1.9	34.9	19.9	4.3	3.6
Powder River	2306	2280	2989	5529	38.3	78.9	38.1	— —	23.0	9.7	2.9	2.6
Prairie	1782	2329	3083	5401	34.3	92.9	38.4	1.5	27.0	18.9	1.4	1.3
Richland	1384	2008	3363	5205	32.6	83.8	20.3	7.8	36.1	15.8	4.4	2.3
Roosevelt	1179	1992	3182	6331	39.2	81.7	16.7	3.7	42.7	26.8	8.8	3.7
Rosebud	1828	2278	3266	3911	43.0	85.8	32.6	7.8	35.7	24.7	4.6	4.1
Sheridan	1574	2566	3477	9781	25.6	67.7	25.7	1.3	27.4	15.8	3.0	1.6
Treasure	2195	3020	4371	4475	35.0	*	56.9	1.6	36.3	27.9	1.3	2.7
Valley	1531	2084	3995	6172	41.7	80.9	36.0	11.2	39.3	20.7	5.1	7.3
Wibaux	1799	2570	3740	5495	24.0	87.0	31.1	2.8	30.4	22.0	0.9	2.0
Montana Summary					38.6	69.7	24.2	9.7	45.3	20.8	6.2	

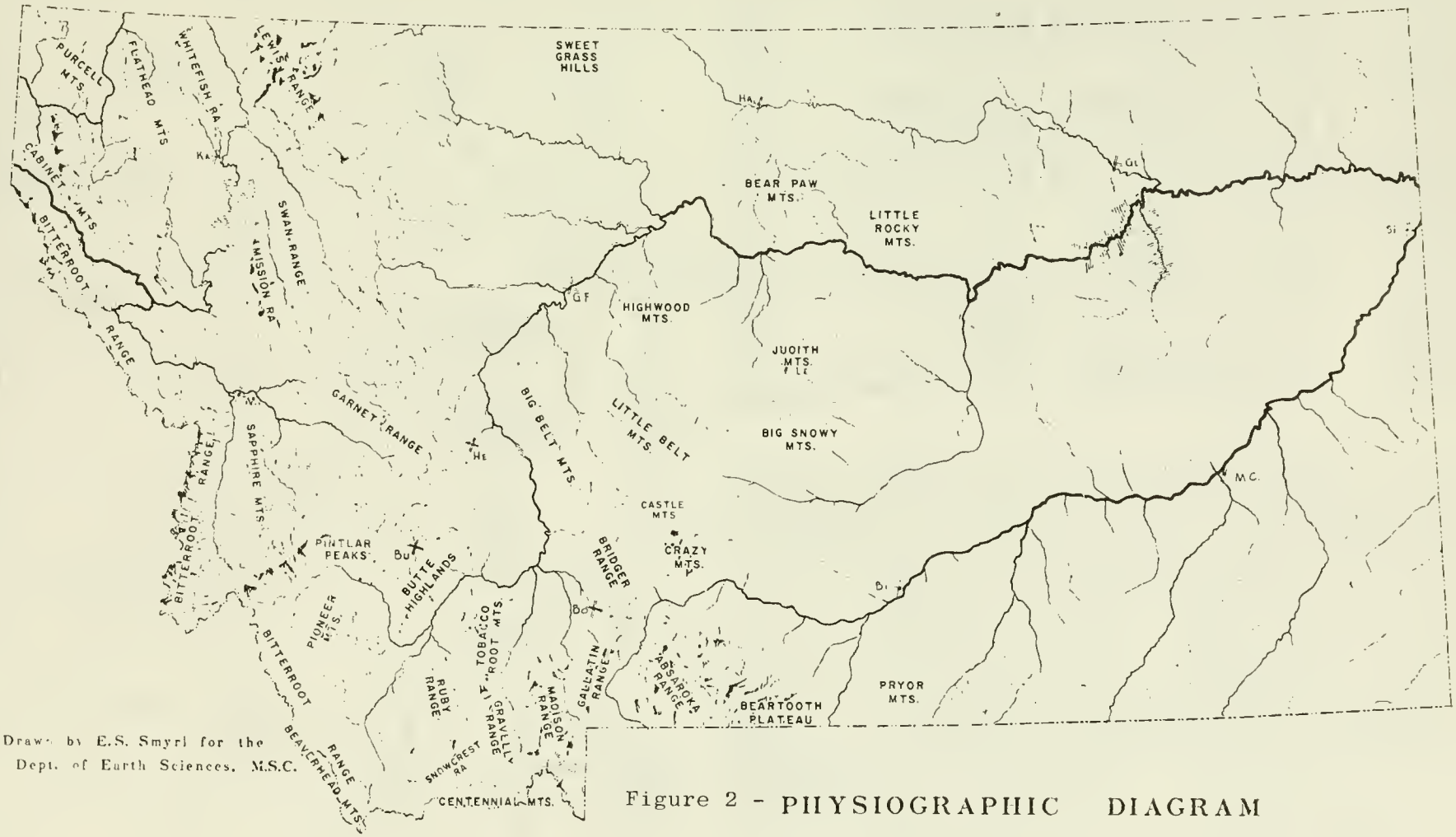
Figure 1

POPULATION DENSITY: MONTANA COUNTIES, 1976
(PERSONS PER SQUARE MILE)



SOURCE: BUREAU OF CENSUS AND BUREAU OF BUSINESS AND ECONOMIC RESEARCH, UNIVERSITY OF MONTANA.

----	0.4 - 1.6	LOW QUARTILE
****	1.7 - 2.7	MEDIUM LOW QUARTILE
****	2.9 - 4.4	MEDIUM HIGH QUARTILE
****	4.7 - 57.5	HIGH QUARTILE



Drawn by E.S. Smyrl for the
Dept. of Earth Sciences, M.S.C.

Figure 2 - PHYSIOGRAPHIC DIAGRAM

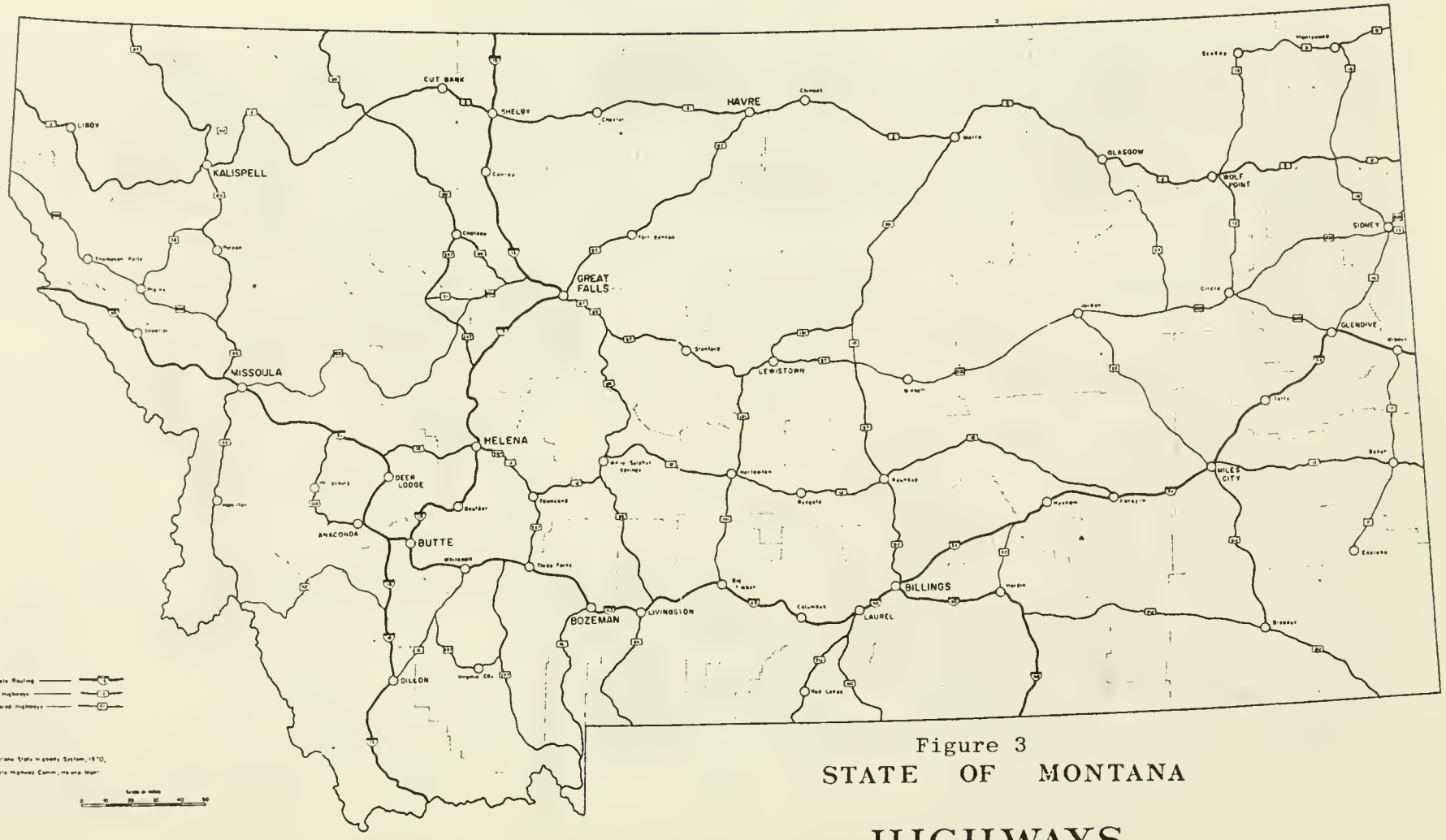


Figure 3

STATE OF MONTANA

HIGHWAYS

southeastern Montana. Figure 3 shows the major highway routes in Montana. Montana's railroad network primarily serves east-west transcontinental traffic. Airlines link the major cities of Montana with medical centers outside the state. However, many small towns can only be reached by charter airlines.

5.0 Economic Characteristics

Employment and family income within a health service area are important factors to be considered when studying the utilization rates of health services within a community. While higher income groups typically have utilized health services more frequently than lower income groups, programs that help finance medical care for lower income groups have somewhat removed the "consumption gap". While hospital admissions may be affected by these financing programs, the use of other health care services is largely determined by income. Higher income groups typically use more specialists, more preventive and more dental services.

6.0 Health Status Indicators

This section is intended to present an overview of the various indicators of health status currently available in Montana. Most of the statistics and narrative in this section have been taken from the Bureau of Records and Statistics' Report, **Montana Vital Statistics, 1977.**

Chapter 7 presents more detailed information on three health problems in Montana and discusses various strategies which might be implemented to reduce these problems.

6.1 Births

During 1977, there were 13,303 births to residents of Montana. This is a crude birth rate of 17.5 per thousand residents compared to the U. S. crude birth rate (provisional) of 15.3 per thousand for the same year. After reaching an all-time recorded low of 15.8 births per thousand in 1973, Montana's birth rate has fluctuated between 15.8 and 17.4 births per thousand since 1971; in comparison, the U. S. crude birth rate has been annually declining since the late 1960s.

In 1977, Montana experienced a natural increase of 6,907 persons, the excess of births over deaths.

Currently there is a trend toward smaller families: in 1965, 68.9 percent of the children born were the first, second, or third child in the family; in 1977, 90.3 percent of the children born were the first, second, or third child. These figures and the low crude birth rate show that Montana couples are having fewer children and smaller families. Although the 1970 census showed that 3.9 percent of Montana's population was Indian, 8.9 percent of all births (1,189) in 1977 were to Indian mothers.

National statistics indicate that the age of the mother at childbirth influences her pregnancy and the health of her child. Mothers and babies born to mothers giving birth very early or very late in their childbearing years experience more problems. Montana statistics, however, do not reflect this situation. Mothers under age 20 and over age 34 constituted 19.5 percent of all mothers in 1976. Mothers in these age groups experienced 19.9 percent of the complications during pregnancy, 19.9 percent of the complications of labor, and had 19.5 percent of the babies born with congenital malformations. Thus, there is no indication that Montana mothers in these age groups or their babies have a disproportionately larger share of pregnancy or birth-related problems.

Babies who are too small or too immature may be unable to take over the vital life functions of breathing, metabolism, excretion, and body temperature control. One in every 13 babies (7.7 percent) born in the United States is born too early (less than 37 weeks gestation), too small (weighing less

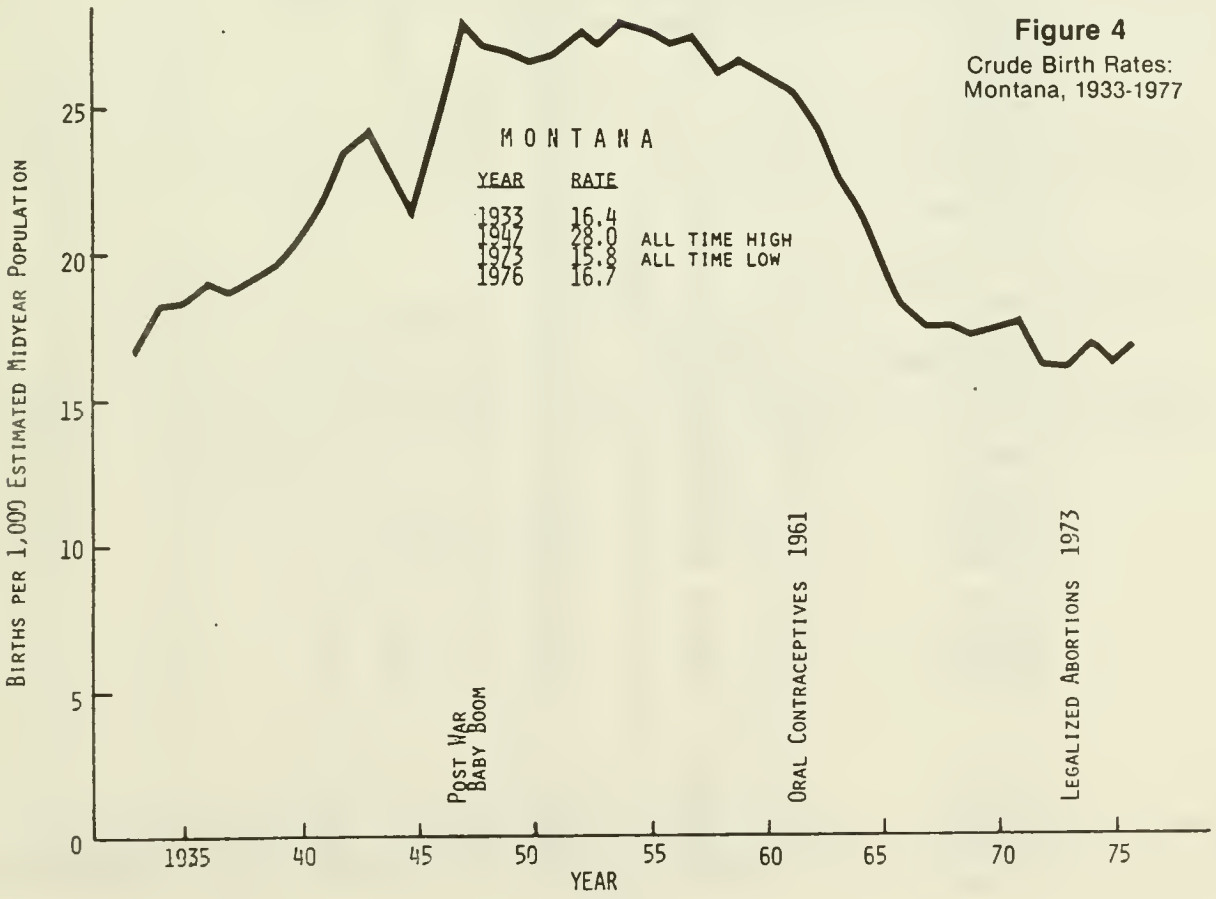


Figure 4
Crude Birth Rates:
Montana, 1933-1977

TABLE 10

1977 Live Births by County of Residence

County	LIVE BIRTHS			
	Total	White*	Indian	Other
Montana Total	**13,304**	**11,946**	**1,189**	**169**
Beaverhead	147	144	2	1
Big Horn	265	79	186	-
Blaine	138	78	60	-
Broadwater	50	50	-	-
Carbon	120	116	3	1
Carter	19	19	-	-
Cascade	1,579	1,430	77	72
Chouteau	102	100	2	-
Custer	226	221	2	3
Daniels	52	51		1
Dawson	203	200	2	1
Deer Lodge	196	187	9	-
Fallon	76	76	-	-
Fergus	187	184	2	1
Flathead	787	760	22	5
Gallatin	595	578	10	7
Garfield	45	45	-	-
Glacier	273	85	186	2
Golden Valley	17	17	-	-
Granite	39	39	-	-
Hill	335	258	75	2
Jefferson	105	101	3	1
Judith Basin	29	29	-	-
Lake	329	215	110	4
Lewis & Clark	634	617	14	3
Liberty	58	58	-	-
Lincoln	322	316	4	2
McCone	44	44	-	-
Madison	71	69	1	1
Meagher	30	30	-	-
Mineral	69	65	4	-
Missoula	1,139	1,074	43	22
Musselshell	74	74	-	-
Park	189	187	2	-
Petroleum	10	10	-	-
Phillips	99	84	12	3
Pondera	130	116	14	-
Powder River	49	48	1	-
Powell	125	124	-	1
Prairie	29	28	1	-
Ravalli	269	262	5	2
Richland	213	211	-	2
Roosevelt	223	100	121	2
Rosebud	232	147	85	-
Sanders	159	148	11	-
Sheridan	87	85	2	-
Silver Bow	620	586	28	6
Stillwater	84	82	2	-
Sweet Grass	51	51	-	-
Teton	131	131	-	-
Toole	96	92	4	-
Treasure	15	15	-	-
Valley	220	191	26	3
Wheatland	40	39	-	1
Wibaux	30	29	1	-
Yellowstone	1,848	1,771	57	20

* White includes Mexican.

than 5½ pounds), or both. In Montana, 1,219 (10.0 percent) of 12,232 babies had reported gestation periods of less than 37 weeks and 833 (6.3 percent) of the 13,304 babies born in Montana were under 5½ pounds.

Several maternal characteristics are associated with low-birth-weight infants. Low-birth-weight infants are more often born to mothers who:

- are younger than age 16
- have previously given birth to a low-birth-weight infant
- are suffering from a chronic condition
- are undernourished
- smoke cigarettes
- are alcoholics
- are addicted to narcotics
- have not had regular prenatal care
- have certain genetic disorders

Nationally, statistics indicate that mothers who fall into more than one of these categories run an even greater risk of having low-birth-weight babies. For example, teen-agers are less likely to have regular prenatal care during pregnancy and they are also less likely to have a balanced diet. One in every four low-birth-weight babies is born to a teen-aged mother and mothers under age 16 have the greatest risk of giving birth to premature infants.

In Montana, one in every five low-birth-weight infants was born to a teen-aged mother: 15.45% (1,948) of all mothers were under 20 years of age but they gave birth to 20.62% (173) of the low-birth-weight infants.

In 1976, half of the Montana mothers who sought prenatal care did so by the time they had been pregnant three months. Mothers of legitimate children sought care about a month sooner than mothers of out-of-wedlock children, half of whom sought care by the time they had been pregnant four months. Less than 1% of Montana mothers received no prenatal care, but 4.72% of the mothers of children born out-of-wedlock received no prenatal care.

Nationally, mothers under age 20 or over age 34 generally seek prenatal care later in pregnancy. This is also the case in Montana.

In 1977, 4.8% (635) of all mothers experienced complications of pregnancy. Toxemia accounted for approximately 40 percent of these complications. Congenital malformations in 1977 were reported for 1.6% (206) of children born to Montana residents, an increase of .3% from 1976. Statewide, 10% of all births were delivered by caesarean section.

6.2 Deaths

There were 6,397 deaths of Montana residents in 1977, producing a crude death rate of 8.4 deaths per thousand estimated population. This represents the lowest crude death rate ever recorded in Montana. The death rate in Montana is lower than the death rate for the United States; 8.4 as compared to 8.8, respectively.

Heart Disease - There were 2,178 deaths in Montana in 1976 caused by diseases of the heart. The predominant cause was ischemic heart disease, accounting for 80.6% of these deaths; the acute form, myocardial infarction, was responsible for over half of these deaths (54.8%). Both crude and age-adjusted rates of deaths from heart disease appear to be going down, and the same pattern can be observed nationwide. In the age group 35-44, heart disease has dropped to the third leading cause of death, and is now almost half what it was in 1972.

Figure 5

RATES FOR THE FOUR LEADING CAUSES OF DEATH
Montana, 1960-76

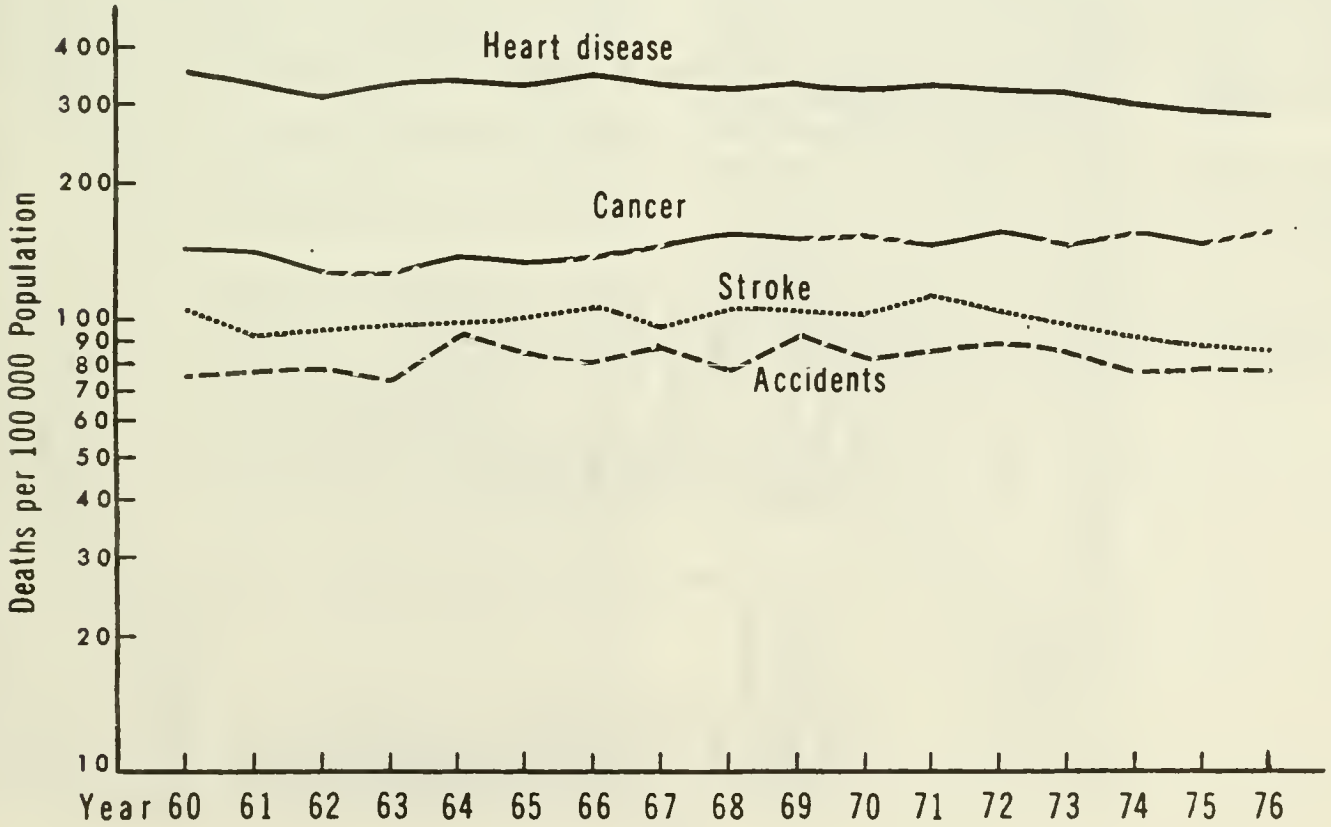


TABLE 11

Deaths From Selected Accidents By Age
Montana, 1977

By place of occurrence, each percent has been independently rounded to the nearest one-tenth of one percent; hence, the sums of parts may differ slightly from the totals shown.

Eighth Revision International List Number	Accidental Cause of Death	Total All Ages	Under 1 Year	1-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65 and Over	Age not Stated
		NUMBER												
	TOTAL DEATHS, All Causes	6,321	159	42	27	40	148	125	166	180	414	881	4,138	1
	Accidental Deaths, Total	597	8	25	19	27	113	85	83	46	47	41	103	-
810-823	Motor Vehicle, Total	326	1	11	7	14	82	65	50	28	28	11	29	-
800-807, 825-949	Other Accidents, Total	271	7	14	12	13	31	20	33	18	19	30	74	-
800-807, 825-845	Other Transportation, Total	25	-	-	-	-	5	4	7	2	4	2	1	-
840-845	Aircraft	9	-	-	-	-	2	1	5	-	1	-	-	-
800-807, 825-838	Other	16	-	-	-	-	3	3	2	2	3	2	1	-
850-869	Poisoning by Solids and Liquids, Total	7	-	-	-	1	-	-	2	-	2	1	1	-
850-859	Drugs and Medications	3	-	-	-	-	-	-	1	-	1	-	1	-
860-869	Other	4	-	-	-	1	-	-	1	-	1	1	-	-
870-877	Poisoning by Gases, Total	14	-	-	-	1	1	1	3	-	1	3	4	-
870-872	Utility Gas	7	-	-	-	1	-	1	-	-	-	2	3	-
873-877	Other	7	-	-	-	-	1	-	3	-	1	1	1	-
880-887	Falls, Total	65	-	-	1	-	2	1	3	1	3	3	51	-
880	On or From Stairs	5	-	-	-	-	-	-	1	-	-	1	3	-
881	On or From Ladder	1	-	-	-	-	-	-	-	1	-	-	-	-
882	From or Out of Building	4	-	-	-	-	1	-	2	-	-	-	1	-
883	Into Opening in Surface	-	-	-	-	-	-	-	-	-	-	-	-	-
884	One Level to Another	8	-	-	-	-	1	1	-	-	1	-	5	-
885-886	Same Level	-	-	-	-	-	-	-	-	-	-	-	-	-
887	Unspecified	47	-	-	1	-	-	-	-	-	2	2	42	-
890-899	Fire and Flames, Total	25	1	5	3		1	2	3	-	2	5	3	-
923	Explosions, Total	1	-	-	-	-	-	-	1	-	-	-	-	-
922	Injury by Firearms, Total	24	-	1	1	5	7	2	4	1	1	2	-	-
910	Drowning, Total	29	2	5	4	2	7	1	4	1	-	1	2	-
916	Struck by Falling Object, Total	7	-	1	1	-	1	1	1	2	-	-	-	-
900-909, 911-915 917-921, 924-949	Other Accidents, Total	74	4	2	2	4	7	8	5	11	6	13	12	-
		PERCENT OF DEATHS FROM CAUSES												
	Accidental Deaths, Total	9.4	5.0	59.5	70.4	67.5	76.4	68.0	50.0	25.6	11.4	4.7	2.5	0.0
810-823	Motor Vehicle, Total	5.2	0.6	26.2	25.9	35.0	55.4	52.0	30.1	15.6	6.8	1.2	0.7	0.0
800-807, 825-949	Other Accidents, Total	4.3	4.4	33.3	44.4	32.5	20.9	16.0	19.9	10.0	4.6	3.4	1.8	0.0

Cancer - Deaths from cancer account for 18.5 percent of all deaths. There were 1,184 cancer deaths in Montana in 1977, a rate of 155.6 deaths from cancer per hundred thousand population. Cancer of the lung continues to increase for both men and women, accounting for 22.6 percent of all cancer deaths. It is the largest single site of cancer for men, contributing to 30.6 percent of all deaths of males from cancer. Cancer of the breast accounts for 17.8 percent of all female cancer deaths.

Stroke - Diseases of the cerebrovascular system, or stroke, are most prevalent in the very old: 88% of the 576 persons dying of these causes in 1977 were more than 65 years old.

A pattern of decrease in stroke death rates has emerged in the past five years, both in the crude and age-adjusted rates.

TABLE 12

Crude and Age-Adjusted Rates per 100,000 Population for Stroke

Total and Age Group 65+

Year	65+		Total	
	age-specific	age-adjusted	crude	age-adjusted
1972	915.49	887.59	103.3	100.7
1973	869.01	842.53	98.6	96.2
1974	802.74	778.27	91.2	88.4
1975	765.33	742.01	88.2	84.7
1976	711.69	690.00	84.6	79.9

Accidents - While half of the deaths due to heart disease, cancer and stroke occur in people over 65, accidents strike among the relatively young. Median age of persons dying due to accidents was 27.5 years in 1977. Accidents accounted for 58.5% of deaths in the age group 1-4. Two-thirds of deaths in the age group 5-14 were categorized as accidental.

Motor vehicle accidents caused 50.3% of all accidental deaths, and the median age at death of victims was 26.5 years. Possibly reflecting reduced speed limits, the crude death rate due to motor vehicle accidents decreased from a high of 50.1 per 100,000 population in 1972 to 38.6 per hundred thousand in 1976, then increased to 39.7 in 1977.

Influenza - Pneumonia - There was no influenza epidemic in 1977. The number of deaths from these causes was about half of that realized in 1976. The death rate from pneumonia was the lowest death rate ever recorded and the first time that it has ever dropped below 20 (18.9 per hundred thousand estimated population).

Deaths from pneumonia and influenza are discussed together because pneumonia is a frequent complication of influenza. In some instances the attending physician may certify the death as due to pneumonia, while in other cases, the death may be assigned to influenza, the condition which initiated the chain of events leading to death.

The impact of influenza on mortality in Montana is further complicated by the fact that persons with a chronic condition are especially susceptible and the insult of influenza in addition to their pre-existing condition may combine to cause death. In such instances, the physician may select the pre-existing chronic condition as the underlying cause of death, or he may choose to certify the death as due to influenza. For this reason, total deaths are carefully monitored when assessing the effect of influenza on the population.

Suicide - There were 143 suicides in Montana in 1977, a crude rate of 18.8 per hundred thousand population. This is a high among rates for the last ten years, but may only reflect better reporting. Violence has been increasing to the extent that in the age group 15-24 years, the five leading causes of death (87.6 percent of the deaths) all involved violence. By far the greatest percentage of deaths due to suicide and self-inflicted injury occur among the white population. In 1977, 93 percent of all suicides were committed by whites. The suicide rates per hundred thousand estimated midyear population for 1974 to 1977 are presented below:

TABLE 13

Total Deaths from Pneumonia & Influenza: 1975-1977

	1975	1976	1977
Total	202	302	153
Pneumonia	185	207	144
Influenza	17	95	9

1974 ..... 20.5 per hundred thousand population
1975 ..... 19.3 per hundred thousand population
1976 ..... 19.4 per hundred thousand population
1977 ..... 18.8 per hundred thousand population

Cirrhosis of the Liver - This cause of death appeared in 1976 for the first time as one of Montana's 10 most frequent causes of death. Alcoholic cirrhosis of the liver accounts for 63 of 119 cirrhosis deaths. If all natural causes mentioning alcoholism are added to all cirrhosis deaths, the rank would be seventh among 1976 deaths.

Most cirrhosis deaths (64%) occurred among males. Although 5% of all Montana deaths occurred among Indians, 20% of all cirrhosis deaths occurred within the Indian population.

Median age at death due to cirrhosis fluctuates from year to year, perhaps due to the small numbers involved. However, the median age at death due to alcoholic cirrhosis is consistently younger than that due to cirrhosis without the factor of alcoholism.

Emphysema-Bronchitis-Asthma - Emphysema, bronchitis, and asthma in 1977 had a cause-of-death rate of 15.4 per hundred thousand estimated population. This represents a slight decrease from 15.9 in 1976. However, this may be discounted by the increase in deaths reported as "chronic obstructive pulmonary disease" (COPD), a term which certifiers are more apt to use in reporting any chronic respiratory disease. Combining emphysema, bronchitis, asthma, and chronic obstructive pulmonary disease in 1977 yielded an increase in the cause of death rate to 29.8 per hundred thousand estimated population, surpassing the effects of the 1976 flu epidemic (27.1).

Infant Deaths - The infant mortality rate in 1977 was 13.8 per thousand live births, the lowest infant mortality ever recorded in Montana. However, the leading group of causes is still that of "birth injury, difficult labor and other hypoxic and anoxic conditions."

Fetal deaths increased from 8.3 per thousand live births in 1976 to 8.9 per thousand in 1977. However, due to the large drop in infant deaths, the perinatal death rate dropped from 19.8 per thousand deliveries to 17.7, also a record low.

APPENDIX 5
GLOSSARY

A-95 AGENCY - The Agency designated to implement the review and comment procedures promulgated by the Office of Management and Budget Circular A-95. In Montana, the State Clearinghouse is in the Office of Budget and Program Planning.

ACCEPTABILITY - The acceptability of health care services is a measure of consumers' satisfaction with the services they receive, the manner in which the services are delivered, the ease with which services are obtained, and consumers' confidence in the providers of the services. It has been suggested that the only way to adequately measure an individual's satisfaction with the personal health care system is to ask him/her a series of direct questions.

The individual appraises such things as the cost, quality, results, and convenience of care. Acceptability also takes into account an individual's cultural and religious attitudes. Provider attitudes should also be taken into consideration.

Acceptability becomes a consideration after (1) the services are **available**, and (2) every effort has been made to render them **accessible**. Then, the question arises as to whether people **like** the manner in which they receive care. Acceptability refers to a consumer's **perceived** or **felt** needs for health care services. Measurement of acceptability is extremely difficult because individual (1) perceptions; (2) opinions; and (3) motivations are involved.

ACCESSIBILITY - Accessibility to health care services refers to the degree to which the system inhibits or facilitates the ability of an individual to gain entry and to receive services. (Thus, accessibility includes geographic, architectural, transportation, social, cultural, temporal, financial, and administrative considerations.) Accessibility is also a function of the availability of health services, and their acceptability.

Accessibility is concerned with whether people can use services, given that they are available.

ACCREDITATION - Recognition by an organization that an institution or individual meets specific predetermined standards.

ACUTE CARE - Medical treatment for a short-term or episodic disease.

ADMISSION RATE - A measure of institution or facility use indicating the number of persons admitted during a specified time period.

ADVANCED LIFE SUPPORT (ALS) - The more advanced of two levels of emergency medical care, ALS systems provide comprehensive care in both the pre-hospital and in-hospital phases of EMS. An ALS system incorporates more specialized and advanced personnel, equipment, and techniques than are found in the first level of care---Basic Life Support.

AFFECTED PARTIES - The person whose proposal is being reviewed, members of the public who are to be served by the proposed new institutional health services; health care facilities and health maintenance organizations located in the health service area in which the service is proposed to be offered or developed, and any agency which establishes rates or standards for health care facilities.

AFFILIATION - An agreement between institutions providing for the referral or transfer of patients, and/or sharing or consultation of services.

ALLIED HEALTH MANPOWER - Is defined broadly to include the professional, technical and supportive workers in patient services, administration, teaching and research, who engage in activities that support, compliment or supplement the functions of physicians, dentists and registered nurses. In addition, all personnel engaged in organized functions (e.g. environmental engineers) are included in the Allied Health pool.

ALLOPATHIC MEDICINE - The medical philosophy ascribed to by the majority of physicians in which treatment of disease is accomplished by medical intervention. See also Osteopathic medicine.

AMBULATORY CARE - All health services provided on a walk-in or outpatient basis, in contrast to inpatient care.

AMBULATORY SURGICAL FACILITY - A facility which may or may not be a part of a hospital, which provides surgical treatment to patients not requiring hospitalization.

ANCILLARY SERVICES - Hospital services other than room and board and nursing professional services. Includes diagnostic radiology, drugs, and laboratory services.

ANGINA PECTORIS - A sudden or reccuring chest pain, with a feeling of suffocation and impending death due, most often to a lack of oxygen to the muscles of the heart.

ANNUAL IMPLEMENTATION PLAN - A document that describes short-range (12 months) objectives which will achieve the goals of the Health Systems Plan.

APPLICANT - An applicant is a person, organization or agency which submits a proposal to MHSA for review in accordance with any of its mandated review functions.

APPROVED ALCOHOL PROGRAM (approved public treatment facility) - A treatment agency operating under the direction and control of the Department of Institutions or providing treatment as set forth by R.C.M. Title 80, Chapter 27, through a contract with the Department of Institutions and approved under 80-2713.

AREA HEALTH SERVICE DEVELOPMENT FUND - Funds available to **Health Systems Agencies** in accordance with their **HSP** to stimulate planning for services and/or facilities identified as priorities in the **HSP** and **AIP**. When available, the fund will be allotted by the **HSA**.

AREAWIDE CHP AGENCY ("B AGENCY") - The regional health planning unit functioning under P.L. 89-749.

AVAILABILITY - Availability is the extent to which health care services are present in a specified geographic area. The mere presence or absence of a given service is the simplest measure of its availabliity. A better measure of availability is whether or not a particular service is present in the appropriate quantity (capacity). The extent to which health care resources (manpower, facilities, equipment) are present in an area is often used as a proxy measure of service availability.

AVERAGE DAILY CENSUS - The average number of inpatients within a facility each day for a given time period (usually one year).

AVERAGE LENGTH OF STAY - The average number of inpatient days spent by patients within a facility.

BACTERIOLOGY - The science which deals with bacteria and their relation to medicine, industry, and agriculture.

BARBITURATES - The most commonly abused sedative. They are used for the treatment of epilepsy, high blood pressure, insomnia, and in the treatment and diagnoses of mental disorders.

BASIC LIFE SUPPORT (BLS) - The first of two levels of emergency medical care, BLS systems provide the basic services necessary to stabilize a patient's condition and sustain that person's life.

BED CAPACITY - This refers to the potential number of beds, based on space intended for use, whether or not beds are actually installed. New-born beds, beds in emergency rooms, anesthesia, recovery rooms, and special diagnostic beds are usually not included.

BED COMPLEMENT - The total number of beds that are normally available in a facility. Beds excluded from the count are the same as those in bed capacity.

BED NEED FORMULA - A mathematical formula predicting the appropriate total number of hospital or long term care beds and the number of hospital or long term care beds by specialty service for a specific population in a specified year.

BLOCK GRANT FINANCING - A consolidation of functional programs into one grant.

BLUE CROSS - An independent non-profit, tax-exempt membership corporation in a specific geographic area providing insurance type protection against hospital costs.

BLUE SHIELD - An independent non-profit, tax-exempt membership corporation in a specific geographic area providing insurance type protection against the cost of surgical and other types of physician services.

BOND - A written promise by the issuer such as a hospital district to repay a sum of borrowed money on a specified date and to pay a set rate interest on the loan.

BUDGET - A detailed financial plan carrying out a program of activities over a specified period, usually a fiscal year.

CAPITAL EXPENDITURE - An expenditure which is made by or on behalf of an institution or program, not properly chargeable as expenses of operation and maintenance under generally accepted accounting principles. Capital expenditures include force account expenditures (i.e., an expenditure for a construction project undertaken by a facility as its own contractor).

CAPITAL FEE - A method of payment, in contrast to fee for service, in which a fixed rate is paid per person.

CARDIOPULMONARY RESUSCITATION (CPR) - A technique which enables a person to revive a patient whose heartbeat and breathing have stopped, by means of artificial respiration and external cardiac pressure.

CASH FLOW - The actual receipts (positive cash flows) or expenditures (negative cash flows) of dollars in the form of cash or checks.

CATASTROPHIC HEALTH INSURANCE - A health insurance plan providing coverage for costs in excess of normal liability.

CATCHMENT AREA - A defined geographic area served by a program (target area).

CATEGORICAL GRANT FINANCING - Grant funding for limited use directed to a specific objective.

CATEGORIZATION - A determination of a hospital's capability to handle emergency patients.

CENTER FOR HEALTH PLANNING - Agencies providing technical assistance and training to Health Systems Agencies and State Agencies authorized by P.L. 93-641. The Center for Health Planning for this region is the PACT Center.

CENTRAL DISPATCH - A situation in which dispatching of emergency help is conducted, in all emergencies, from one location.

CEREBRAL ANGIOGRAPHY - A procedure in which contrast material is injected into the bloodstream, thus allowing the blood vessels in the skull to be imaged by conventional X-ray techniques.

CERTIFICATE OF NEED - The process by which the value of proposed changes in health facilities and services is measured against public need. Such changes may include: construction of new facilities or development of new services, conversion of existing facilities or services and modernization of existing services or facilities. The process of certification of need calls for **Review** and **Comment** by the **HSA** and **Approval** by the DHES.

CERTIFICATION - Recognition that an individual meets predetermined standards for role performance.

CHEMISTRY - A science that deals with the composition, structure, and properties of substances and of the transformation they undergo.

CHIROPRACTIC CENTER - A health institution, licensed by the State Health Department, which is planned, organized, operated and maintained to offer facilities, help and services to persons desiring chiropractic treatment under the supervision of persons licensed to practice the chiropractic system of therapeutics, as distinguished from medical and surgical treatment as defined in the Medical Practice Act of the State of Montana.

CHRONIC CARE - The treatment of chronic disease where long-term treatment is required.

CLINIC - An outpatient facility for diagnosis and treatment.

CLINICAL BIOCHEMISTRY - The chemistry of living organisms and of vital processes, especially as it relates to patient care.

CLINICAL PATHOLOGY - Pathology applied to the solution of clinical problems, especially the use of laboratory methods in clinical diagnosis.

COINSURANCE - A cost sharing provision in most health insurance policies where the insured is required to pay a percentage of health care cost.

COMMUNITY CLINICS AND EMERGENCY CENTER - A health institution, licensed by the State Health Department, which is planned, organized, operated and maintained to provide basic community facilities and services for the diagnosis and treatment of individuals requiring outpatient services and emergency care, including inpatient accommodations for emergency care.

COMMUNITY MENTAL HEALTH CENTER - A physical plant or a group of mental health services under unified administration and including at least the following: 1. Inpatient services; 2. Outpatient services; 3. Day hospitalization; 4. Emergency services; 5. Consultant and educational services provided principally for mentally ill persons residing in a particular community or communities in or near which the facility is situated. The term "unified administration" shall mean either alone or in conjunction with other facilities owned or operated by a licensee or affiliated with the licensee.

COMPREHENSIVE HEALTH PLANNING (CHP) - The previous system of area-wide health planning agencies and state agencies functioning under P.L. 89-749. Included in this system were 314 (b) Agencies which served locales and 314 (a) Agencies which acted as the agency which coordinated the activities of the 314 (b) Agencies on a statewide basis.

CONDITIONAL DESIGNATION - A limited period (up to 24 months) in which an **HSA** or **SA** is required to gear up for and carry out those functions specified for it under P.L. 93-641.

CONSUMER - Persons who are neither direct nor indirect providers of health care and who make up a majority of membership of an **HSA** Governing Body and the **SHCC**.

CONTINUITY - Continuity refers to the degree of coordination present in the delivery of health care services to each consumer. Continuity is a measure of the extent to which the health system interrelates and integrates various services delivered to a consumer over time and in various settings.

Continuity of the health care system is the degree of coordination of services, their correct sequencing and timing, the interrelationships within the system, and the interaction of the consumer with the health system.

Continuity also refers to the existence of patient care management, in which a continuing record of services received, conditions reported, and planned program of service use is maintained. Usually refers to the use of services for a single illness episode. The integration of prescribed services, considering the person as a whole, is sought.

CONVALESCENT CENTER - A health institution that is planned, organized, operated and maintained to offer facilities and services to inpatients requiring restorative care and treatment, and that is either an integral patient care unit of a general hospital or a facility physically separated from but maintaining an affiliation with all services in a general hospital.

COOPERATIVE HEALTH STATISTICS SYSTEM (CHSS) - A program in which federal, state, and local governments cooperate in collecting health statistics. Statistics will be collected in the areas of health manpower, health facilities, hospital care, household interviews, ambulatory care, long-term care, and vital statistics.

COSTS - The total economic value of resources required to provide services, including all financial expenditures, especially expenditures for capital and operating requirements.

COST BENEFIT ANALYSIS - A procedure which attempts to relate program costs to the results of program activities, expressed in monetary units, to aid in determining the best monetary investment.

COST CENTER - An accounting procedure where costs are attributed to hospital units such as emergency or radiology rather than to services such as hospital-wide nursing or laundry.

COST CONTAINMENT - Formal activity related to the control of health services costs through efforts such as improved efficiency, utilization review, claims review, or other programs.

COST EFFECTIVENESS ANALYSIS - Procedure in which a program's costs are calculated and alternative ways are compared for achieving a specific set of results (benefits).

COST OUTCOME ANALYSIS - The procedure which relates program costs to program results (outcomes) without translating outcomes into economic indicators, i.e., the determination of the minimum costs that are necessary to produce a given outcome.

COUNCIL OF GOVERNMENTS (COG) - Multi-jurisdictional cooperative association of local governments to permit a com-

prehensive approach to problems that affect the region as a whole. COGs are substate regional planning agencies established by states and are responsible for areawide review of projects, development of regional plans, and other special purpose arrangements.

CREDENTIALING - The recognition of acceptability in meeting the standards of registration, certification, or licensure of manpower or facilities.

CRITERIA - Generally acceptable guidelines of performance upon which recommendations and decisions are based for various review functions.

CRITICAL CARE - Care provided in an acute or crisis situation. EMS systems refer to ten critical care categories for which acute care is planned.

CYTOLOGY - A branch of biology dealing with the structures, function, multiplication, pathology, and life history of cells.

DATA - Detailed information of any kind, usually refers to statistical information.

DAY CARE - Services that are provided on a business day basis rather than around the clock. Day care services include mental health services, rehabilitation, and child care services.

DEBT SERVICE - The principal amount of a loan and the interest on the loan which a borrower agrees to pay in periodic payments over a specified period of time.

DEDUCTIBLE - A provision in health insurance policies by which the insured pays a specified minimum loss before the insurer provides coverage.

DEFINITIVE CARE - Measures taken to correct or limit illnesses or injuries which interfere with normal body functions.

DEMAND - The degree which the consumer is willing and able to purchase health services.

DENTAL HEALTH SERVICES - All preventive, therapeutic, and educational services pertaining to the teeth, oral cavity, and related structures.

DEPARTMENT OF HEALTH, EDUCATION AND WELFARE - The federal level executive branch agency charged with the implementation of most federal health programs.

DEPRECIATION - The decline in value of capital assets due to use and/or age.

DESIGNATED PLANNING AGENCY (DPA) - A state agency which administers the capital expenditure review functions under Section 1122 of the Social Security Act. The DPA in Montana is the State Health Department.

DEVELOPMENTAL DISABILITY - A chronic disability or impairment originating prior to age eighteen which is related to intellectual function.

DIAGNOSIS - The process of determining by examination the nature and circumstance of a diseased condition.

DIALYSIS TREATMENT CLINIC - A health institution or a department of a licensed hospital planned, organized, operated and maintained to provide outpatient treatment by means of hemodialysis and/or training for home use of hemodialysis equipment.

DIRECT COST - A cost identifiable with a specific program activity.

DIRECT PROVIDER - Individuals whose primary activity is the provision of health care, or the administration of facilities or institutions in which such care is provided.

DISABILITY - A limitation of an individual when in composition to others of similar age, sex and occupation. A disability may be physical, mental or social in nature.

DISEASE - A disorder or impairment of the normal state of being.

ECHOENCEPHALOGRAPHY - A procedure in which ultrasonic waves are directed at the head and their reflections are detected and analyzed to acquire information about distortions in the shape of the brain.

ECONOMIC FEASIBILITY - Evaluation of a program's potential for success based on factors such as construction and equipment costs, revenue sources, services costs, and population economic indicators.

ELECTROENCEPHALOGRAPHY - Recording of the electric currents developed in the brain by means of electrodes applied to the scalp or the surface of the brain, or placed within the substance of the brain.

EMERGENCY DEPARTMENT - The organized facilities and services provided primarily for the management of out patients coming to the hospital for emergency care. The department is also sometimes referred to as emergency room, accident room, or casualty room.

EMERGENCY MEDICAL SERVICES (EMS) - Medical, transportation, and technical services that are provided for the treatment of trauma and other types of medical emergencies.

EMS AREA or REGION - The geographic boundaries within which an EMS system is organized. These boundaries are generally determined by a combination of medical trade areas, political boundaries and geographic or topographic barriers.

EMS DISPATCHER - A person trained to receive calls for emergency medical help, assess the situation and dispatch the necessary services in an expedient and coordinated manner.

EMS SYSTEM - A structure that establishes procedures and protocol for the provision of EMS so that all services work together to provide the full range of care needed by each patient.

EMERGENCY MEDICAL TECHNICIAN (EMT) - A health professional who provides first aid and other life support measures to emergency patients under the supervision of a nurse of doctor. There are two levels of EMTs --- the EMT-A who has been trained in a 82-hour course primarily for ambulance attendants and the EMT-P who has completed a minimum of 120 hours of training in basic and advanced life support techniques. The EMT-P also is referred to as a paramedic.

ENVIRONMENTAL HEALTH - The aspect of public health involving man's surrounding environment: air, water, sewage, food, drugs, sanitation, and other conditions that may exert an influence on man's health and well-being.

EVALUATION - An assessment or examination in which actions and their results are measured against predetermined norms in order to choose among alternatives for the future.

EXECUTIVE COMMITTEE - A committee of the Health Systems Agency governing body that has authority to take actions on behalf of the governing body.

EXISTING SERVICE - Those services currently offered or available in a **Health Service Area.**

EXPERIMENTAL HEALTH SERVICES DELIVERY SYSTEM (EHSDS) - A federal program, currently being phased out, to develop, test and evaluate the organization and operation of coordinated communitywide health services management systems.

EXTENDED CARE FACILITY (ECF) - A skilled nursing facility that lodges patients who need a long time to recover from an illness or operation but do not need to stay in a hospital during that time.

FACILITY - The buildings, grounds, supplies, and equipment which are used or occupied by an organization or one of its units.

FACILITY FOR THE MENTALLY RETARDED (MR) - A facility especially designed for the diagnosis, treatment, education, training, or custodial care of the mentally retarded, including facilities for training specialists and sheltered workshops for the mentally retarded, but only if such workshops are part of facilities which provide or will provide comprehensive services for the mentally retarded.

FEE FOR SERVICE - The type of billing system where a patient is charged for each medical encounter in accord with the services provided.

FIDUCIARY INTEREST - A relationship in which an individual or organization has an explicit or implicit obligation to act in behalf of another person's or organization's interest.

FINANCIAL FEASIBILITY - The determination of a program's ability to balance operational income and expenses.

FIRST RESPONDERS - People with limited first aid training who can provide care to an emergency patient until ambulance or Quick Response Unit personnel arrive. First responders are quite often safety personnel.

FIXED COSTS - Costs that do not vary with the level of output.

FOREIGN MEDICAL GRADUATE (FMG) - A physician trained by a medical school outside of the United States.

FORMULA GRANT - A type of federal grant to states which is automatically available on submission of an acceptable program for their use. The amount is usually determined by a state's population and per capita income.

FULL DESIGNATION - A status conferred on a DHES and/or HSA by the Secretary of HEW where all the statutory functions under P.L. 93-641 must be performed.

FUND ACCOUNTING - A system of accounting which establishes separate accounts for specific activities.

GENERAL ACUTE CARE HOSPITAL - A hospital that provides acute care services to the general public.

GENERAL HOSPITAL - A health institution planned, organized, operated and maintained to offer facilities, beds and services over a continuous period exceeding twenty-four hours to individuals requiring diagnosis and treatment for illness, injury, deformity, abnormality or pregnancy.

GOVERNING BODY - A board of directors with an Executive Committee responsible for the organization and performance of an HSA. The qualifications for seating on a governing body are spelled out in Section 1512 (b) (3) (C) of P.L. 93-641.

GRANDFATHER CLAUSE - A provision of law that permits continued status to an entity despite changes in the law that would make them currently ineligible.

GROUP PRACTICE - A formal arrangement between three or more health professionals providing services where resources are combined and shared.

HALLUCINOGENS - Drugs which distort perception, produce dream images and hallucinations, are known as hallucinogens, psychotomimetics, dysleptics, or psychedelics. Mescaline, peyote, LDS, and STP are the most commonly abused drugs in this classification.

HEALTH - Defined by the World Health Organization as a "state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity."

HEALTH CARE FACILITY - All building units in which health care services are provided. All health care facilities in Montana require a license or a Certificate or Compliance by the Montana Department of Health.

These facilities include:

General Hospitals
Psychiatric Hospitals
Community Clinics and Emergency Centers
Convalescent Centers
Chiropractic Centers
Community Mental Health Centers
Facilities for the Mentally Retarded
Nursing Care Facilities
Intermediate Care Facilities
Maternity Hospitals
Dialysis Treatment Clinics
Rehabilitation Centers
Other Similar Institutions

HEALTH CARE SYSTEM - A grouping of interrelated, sometimes independent components (manpower, facilities, equipment and dollars) designed to achieve a set of health-related goals.

HEALTH INSURANCE - Indemnity coverage against financial losses associated with the treatment of a health problem.

HEALTH MAINTENANCE ORGANIZATION - A public or private organization organized under the laws of the State of Montana which provides or otherwise makes available to enrolled participants health care services, including at least usual physician's services, hospitalization, laboratory, x-ray, and emergency and preventive services and out-of-area coverage. An HMO is compensated, except for co-payments, for the provision of the basic health care services by enrolled participants on a pre-determined periodic rate basis. Physicians services are provided directly through physicians who are either employees or partners of such organization or through arrangements with individual physicians or one or more groups of physicians, organized on a group practice or individual practice basis.

HEALTH MANPOWER - All individuals employed in health related professions.

HEALTH PLANNING - The organization of activities or projects intended to improve the population's health through the coordination and development of health resources.

HEALTH PLANNING CENTER - A center established to serve a region of the Department of HEW by providing technical assistance and training to **HSAs** and **SHPDAs**.

HEALTH RESOURCES - Human, monetary, or material resources used in providing health care and health care services.

HEALTH SERVICE AREA (HSA) - The geographic area established by the Secretary of HEW for which a health systems agency will be formed.

HEALTH STATUS - The state of health of an individual, group or population. Measurements may be accompanied by the evaluation of health status indicators.

HEALTH SYSTEMS AGENCY (HSA) - A non-profit, governmental or quasi-governmental entity **conditionally** or **fully** designated by the Secretary of HEW to carry out health planning and implementation functions for a **Health Service Area**.

HEALTH SYSTEMS PLAN (HSP) - A detailed statement of goals and five-year long-range objectives that describe the health status, health system, and environment of the community. The HSP will assure quality health services that are available and accessible in a manner that assures continuity of care at reasonable cost and which is responsible to the unique needs and resources of the area.

This plan deals with a wide range of health care matters and delineates goals and objectives which, when achieved, will improve the quality, quantity, availability and accessibility of services to the public in the area. Each HSP is reviewed by the **State Health Planning and Development Agency** and integrated into a **State Health Plan** which is approved by the **Statewide Health Coordinating Council**.

HEMATOLOGY - A branch of biology which deals with the blood and blood forming organs.

HILL BURTON - A program of federal support for construction and modernization of hospitals and other health facilities. The program has been modified under Title XVI of P.L. 93-641.

HISTOPATHOLOGY - Pathology dealing with a branch of anatomy that deals with the minute structure of animal and plant tissues as discernible with the microscope.

HOME HEALTH CARE - Health services rendered to an individual as needed in the home, usually of nursing skill nature. Provision of home health care may be in many instances in place of institutionalization.

HORIZONTAL CATEGORIZATION - A classification of levels of hospital emergency capability by a predetermined scheme.

HOSPITAL - An institution which is licensed by the State Health Department and engaged in providing to inpatients and outpatients, by or under the supervision of physicians, diagnostic services and therapeutic services for medical diagnosis, treatment and care of injured, disabled or sick persons, or rehabilitation services for the rehabilitation of injured, sick or disabled persons.

HYALINE MEMBRANE DISEASE - Cause of newborn death involving respiratory tract.

IMMUNOHEMATOLOGY - The branch of medicine dealing with diseases of the blood in which the cause, the development of disease, or the clinical manifestations have been shown to be determined by an antigen-antibody reaction.

INCIDENCE - An epidemiologic term referring to the number of cases of a disease having their onset during a prescribed period of time in relation to the population unit in which they occur.

INDEMNITY - A contract or assurance by which one person engages to secure another against losses, e.g., insurance.

INDIRECT COST - A cost which cannot be identified directly with a particular activity, service or product of the program experiencing the cost.

INDIRECT PROVIDER - An individual or organization with a fiduciary or other indirect interest in the delivery of health care services.

INFORMATIONAL/REFERRAL - A facility that directs people with alcohol or drug problems to available resources.

INFORMATION SYSTEM - A set of procedures, methods, organization, software, and hardware elements used to file and retrieve information for planning and decision making.

INITIAL CONTACTS - A person makes an initial contact when he seeks help or information from a program for the first time. The person may or may not become a client of the program, but persons seeking help because of another's problem are also considered initial contacts. Only those persons encountered on a face-to-face basis are counted as initial contacts.

INPATIENT CARE - Treatment of patients who have been admitted overnight or longer to a facility.

INSTITUTIONAL HEALTH SERVICES - Health services provided through health care facilities and health maintenance organizations.

INTERMEDIATE CARE FACILITY (ICF) - A health related institution, licensed by the State Department of Health, which is planned, organized, operated, and maintained to provide facilities and services which are supportive, restorative and preventive in nature, with related social care, to individuals who because of a physical or mental condition, or both, require care in an institutional environment but who do not have an illness, injury or disability for which regular medical care and 24-hour nursing services are required.

JOINT COMMISSION ON ACCREDITATION OF HOSPITALS (JCAH) - A private, non-profit organization that encourages and monitors high standards for institutional medical care.

LICENSE - A permission granted to an individual or organization by competent authority, usually public, to engage in a practice, occupation or activity otherwise unlawful. It is usually granted on the basis of examination and/or education rather than on measures of performance.

LIFE SAFETY CODE - A fire safety code prepared by the National Fire Protection Association, the provision of which must be met by facilities certified for participation under Medicare and Medicaid.

LONG-TERM CARE - Health and/or personal care services required over an extended period by persons who are chronically ill, aged disabled or retarded.

LONG-TERM CARE FACILITY - An institution, or a distinct part of an institution, primarily engaged in providing to inpatients skilled, intermediate, or sheltered nursing care and related services for patients requiring medical nursing or rehabilitation services, and licensed by the State Department of Health.

MAJOR PURCHASERS OF HEALTH CARE - Entities other than providers of health care involved with obtaining health services for employees, members, or beneficiaries.

MALPRACTICE - Professional misconduct or lack of ordinary skill in the performance of a professional act.

MATCHING FUNDS - Funds made available to an organization by a supporting agency in a specified percentage that matches a contribution from another agency.

MATERNITY HOSPITAL - A health institution planned, operated, and maintained to offer medical and nursing facilities, help and services over a continuous period exceeding 24 hours to women requiring care before, during and after obstetric delivery.

MEDICAID (TITLE XIX) - A federally aided, state operated and administered program which provides medical benefits for certain low income persons in need of health care.

MEDICAL AUDIT - Detailed retrospective review and evaluation of selected medical records by qualified professional staff. Professional performance is evaluated by comparing it with accepted criteria, standards and professional judgment.

MEDICAL EMERGENCY - An emergency in which the patient may die or become permanently disabled without immediate medical attention.

MEDICAL FACILITY - Any outpatient or inpatient medical treatment site.

MEDICAL RECORD - A record kept on patients which contains sufficient information to identify the patient clearly, justify diagnosis and treatment, and accurately document the results.

MEDICALLY UNDERSERVED POPULATION - An urban or rural area designated by the Secretary (DHEW) as having a shortage of personal health services or a population group designated by the Secretary as having a shortage of such services.

MEDICARE (TITLE XVIII) - A nationwide health insurance program for people aged 65 and over, for persons eligible for Social Security disability payments for more than two years, and for certain workers and their dependents who need kidney transplantation or dialysis.

MENINGITIS - Inflamation of the three membranes that envelop the brain and spinal cord.

METHODOLOGY - The principles and approach used to organize information.

MICROBIOLOGY - The science which deals with the study of microorganisms, including bacteria, molds and pathogenic protozoa.

MICROWAVE SYSTEM - A system which improves communications capabilities in mountainous areas by allowing the transmission of high frequency radio waves from an initial point to a tower and then to the desired receiver.

MOBILE INTENSIVE CARE UNIT (MICU) - A vehicle with the space, equipment, supplies, communications and capabilities necessary for the provision of supportive, definitive and therapeutic emergency medical care for the ill or injured, both on site and during transport, by specially qualified personnel. Such vehicles are to be affiliated with a designated hospital.

MODERNIZATION - Health facility and equipment renovation, repair or replacement.

MONTANA FOUNDATION FOR MEDICAL CARE - The organization designated as the Professional Standards Review Organization in Montana.

MONTANA MEDICAL EDUCATION & RESEARCH FOUNDATION (MMERF) - An organization that provides continuing medical education.

MONTANA STATUTE - The Montana Certificate of Need Law amending Sections 69-5201 and 69-5212 or R.C.M. 1947, and new section 69-7303.

MORBIDITY - The extent of illness, injury, or disability in a defined population.

MORTALITY - The number of deaths in a specified population.

MYCOLOGY - A branch of science dealing with fungi.

NARCOTICS - Drugs which produce insensibility or stupor due to their depressant effect on the central nervous system. Included in narcotics are: opium, opium derivatives (morphine, codeine, heroin), and synthetic opiates (merperidine, oxycodone, methadone). Cocaine is also considered a narcotic for law enforcement reasons, even though it is actually a stimulant.

NATIONAL COUNCIL ON HEALTH PLANNING - A fifteen (15) member advisory council that monitors implementation of P.L. 93-641, consults on the development of national health planning guidelines and evaluates the role of new medical technology in the health system.

NATIONAL HEALTH INSURANCE (NHI) - Universal health insurance coverage. Various NHI proposals are being debated by the U.S. Congress.

NATIONAL HEALTH PLANNING GUIDELINES - A series of guidelines promulgated by the Secretary of HEW which set standards respecting the appropriate supply, distribution and organization of health resources. These guidelines include a statement of national health planning goals.

NATIONAL HEALTH PRIORITIES - Priorities established by the Congress for health planning, as spelled out in P.L. 93-641.

NATIONAL HEALTH SERVICE CORPS - A program that assigns health care personnel to critical manpower shortage areas.

NECROPSIES - Examination of bodies after death.

NEED - A condition whereby consumers experience a lack (either real or perceived) of necessary health care services; also, the appropriate amount and kind of services to be provided.

NEEDS ASSESSMENT - An estimate of what kind of health services should be provided for a given area or population.

NEIGHBORHOOD HEALTH CENTER - A community health service center providing primary health care services to individuals in a specified target area.

NEW INSTITUTIONAL HEALTH SERVICES - Health services provided in or through health care facilities or health maintenance organizations which were not provided for at least a 12-month period prior to an application for review.

NINE-ELEVEN (911) - A three-digit emergency telephone number accepted by the Bell Telephone System as the nationwide emergency number.

NON-CONFORMING BEDS - Hospital beds that are deficient due to: 1) unsuitable structural frame, 2) fire and safety deficiencies, 3) unsuitable room and environment or 4) inadequacy of ancillary services.

NON-METROPOLITAN - Areas that are not U.S. Census Bureau Standards Metropolitan Statistical Areas (SMSAs).

NON-PROFIT - A program that is: 1) tax exempt, and 2) returns all revenues to its operation rather than payment of dividends to investors.

NON-SYPHILIS SEROLOGY - A laboratory category of serology tests, which includes all those not related to tests for syphilis.

NUCLEAR OR RADIOISOTOPE BRAIN SCANNING - A diagnostic procedure involving the injection of radioisotopic material into the bloodstream and the scanning of the head by a camera which detects and records the radioactivity. Areas with abnormal concentrations of radioactivity are presumed to be damaged.

NURSE - An individual trained and qualified by law to provide nursing services. Categories include Registered Nurse (RN), Licensed Vocation Nurse (LVN), and Licensed Practical Nurse (LPN).

NURSE PRACTITIONER - A registered nurse trained to provide primary care services independently but under the supervision of a physician.

NURSING HOME - Institutions other than hospitals providing maintenance, personal, and nursing services to individuals unable to care for themselves.

OBJECTIVE - A quantifiable target or goal with a timeline for achievement.

OBLIGATION FOR A CAPITAL EXPENDITURE - An obligation for a capital expenditure shall be deemed to have been incurred:

1. When an enforceable contract is entered into for the construction, acquisition, lease or financing of a capital asset; or
2. Upon the formal internal commitment of funds by a facility for a force account expenditure which constitutes a capital expenditure; or
3. In the case of donated property, the date on which the gift is completed.

OCCUPANCY - The ratio of average daily census to licensed beds usually expressed as a percent. Occupancy rate may also be determined by dividing the number of patient days per year by available bed days (365 times the number of licensed beds).

OCCUPATIONAL HEALTH - Health care and health and safety services in the context of the work environment.

OMB CIRCULAR A-95 - Office of Management & Budget regulations affecting certain Federal grant and loan applications.

OPEN MEETING - A public meeting to allow community participation in policy decisions.

OTHER SIMILAR INSTITUTION - A health institution, licensed by the State Health Department which is planned, organized, operated and maintained to conduct a program of medical treatment and nursing care and/or supervision which by its nature does not fit into any of the preceeding classifications defined by the State Health Department. The institution shall be planned, constructed, organized, operated and maintained to furnish care and treatment for the individuals whom it serves.

OPERATIONS RESEARCH - The application of scientific and mathematical methods to the study of complex problems not traditionally considered within the field of scientific inquiry.

OSTEOPATHIC MEDICINE - A school of medicine traditionally oriented to the adjustment of the medical organism; currently identical to allopathic medicine with the exception of greater use of physical manipulations.

OUTPATIENT HEALTH CARE - Services provided to a patient on an ambulatory basis at a health facility without hi sbeing admitted to that facility.

PARASITOLOGY - The science or study of parasites and those infected with parasites.

PATHOLOGY - The study of the essential nature of diseases and especially of the structural and functional changes produced by them.

PATIENT DAY - A unit of measure denoting 24-hour lodging provided and services rendered to one inpatient between the census taking hour (usually midnight) or two successive days.

PATIENT ORIGIN STUDY - A study to determine the geographic distribution of homes of patients served by one or more health services.

PATIENT TRANSFER GUIDE- Published material describing the features of facilities to which a physician may want to transfer a patient.

PEER REVIEW - The evaluation by practicing physicians or other health professionals of the effectiveness and efficiency of services ordered or performed by other members of their professional category (peers). It sometimes refers to the activities of Professional Standards Review Organizations and utilization reviews.

PER DIEM COST - The cost incurred by an institution for a day of care for one patient.

PHYSICS - A science that deals with matter and energy and their interactions in the fields of mechanics, acoustics, optics, heat, electricity, magnetism, radiation, atomic structure, and nuclear phenomena.

P.L. 93-641 - The numberical designation given to the National Health Planning and Resources Development Act of 1974.

PNEUMOENCEPHALOGRAPHY - A diagnostic procedure in which air is injected into the spinal column and then moves up into the ventricles of the brain where it can be seen on conventional X-ray. These distortions in the ventricular space indicate space-filling lesion in the brain.

POLICY - A definite course or method of action by which to make present and future decisions.

POVERTY AREA - A geographic area with a large number of low income families.

PREINFARCTION ANGINA - Pain in muscle tissue caused by an interrupted blood supply due to tissue.

PRELIMINARY STATE HEALTH PLAN - The draft **State Health Plan** submitted to the **SHCC** by the **SHPDA**. This draft may contain recommendations by the **SHPDA** to modify **HSPs**.

PREPAYMENT - Advance payment for health services, as in health maintenance organizations.

PREVALANCE - The number of cases of disease extant at a particular time in relation to the size of the population.

PREVENTIVE MEDICINE - Health services (such as immunization programs or early detection of disease) intended to prevent the occurrence of health problems.

PRIMARY CARE - See the Primary Care Section of the Health Systems Plan.

PRIMARY TRANSPORTATION - An organized rapid response system of emergency vehicles which provide transport of emergency personnel and patients from the emergency scene to appropriate medical facilities.

PRIORITY - A preferential rating given to one of a number of competing persons or things.

PROFESSIONAL STANDARDS REVIEW ORGANIZATION (PSRO) - A physician sponsored organization operating with authority of the Social Security Amendments of 1972, P.L. 92-603, charged with comprehensive and ongoing review of services provided under Medicare, Medicaid, and Maternal and Child Health Programs, to determine whether services are medically necessary, provided in accordance with professional criteria, norms and standards and rendered in the apropriate setting. The PSRO in Montana is The Montana Foundation for Medical Care.

PRO FORMA - Fiscal standards which embody forecasts of all assets and liabilities as well as income statement items.

PROGRAM - A set of related organizations, resources, and/or actions directed to the accomplishment of a defined set of objectives for a specified target population or geographic area.

PROJECT REVIEW - Review and comment functions carried out by Health Systems Agencies in accordance with Montana Certificate of Need Laws, Section 1122 of the Social Security Act, and New Institutional Health Services.

PROPRIETARY - A descriptive term for health care institutions operated on a "for profit" basis.

PROSPECTIVE REIMBURSEMENT - Any method of paying hospitals in which amounts or rates of payment are established ir advance for the coming year and the hospitals are paid these amounts regardless of the costs they actually incur.

PROVIDER - An individual or organization whose responsibility involve the provision, administration, teaching, or development of health services, activities, or supplies. The provider may have a direct or indirect interest in the health industry.

PSYCHIATRIC HOSPITAL - A health institution, licensed by the State Health Department, which is planned, organized, operated and maintained to offer facilities, beds, and services over a continuous period exceeding twenty-four (24) hours to individuals requiring early diagnosis, intensive and continued clinical therapy for mental illness and rehabilitation. Integrated therapeutic programs are provided within such institutions.

PUBLIC ACCOUNTABILITY - The responsibility owed to the general public by organizations, institutions and agencies, manifested in public meetings, open records, conflict of interest declarations, etc.

PUBLIC HEALTH - The field concerned with the protection and improvement of community health by organized community efforts.

PUBLIC HEARING - A public meeting considering a specific issue and allowing for a decision considering all available information and viewpoints.

PUBLIC REGIONAL PLANNING COMMISSION - See Council of Governments.

PUBLIC SAFETY AGENCIES - Law enforcement, fire protection, search and rescue, and other agencies whose purpose is to insure the safety and well-being of the citizenry.

QUALITY - Quality refers to the degree to which health care services are delivered in accordance with established professional standards in terms of structure, process and outcome. Structure measures the physical facilities, staff qualifications and organization of service; process measures the appropriateness and professional adequacy of services; and outcome measures the results of services in terms of the patient's health condition.

Quality is frequently described as having three aspects: 1) quality of input resources (i.e., certification and/or training of providers); 2) quality of the process of service delivery (i.e., use of appropriate procedures for a given condition); 3) and quality of the outcome of service use (i.e., actual improvement in condition or lack of harmful effects).

QUICK RESPONSE UNITS (QRUs) - A group of individuals trained and equipped to provide Basic Life Support. Generally located in areas where ambulance response times arelong because of the distance involved, the nontransport QRUs are dispatched at the same time as an ambulance and provide emergency care until the ambulance arrives.

RADIOBIOASSAY - Determination of the active power of a sample of radiation by noting its effect on animals or humans as compared with the effect of a standard preparation.

REGIONAL MEDICAL PROGRAMS (RMP) - Previous agencies established to plan for and stimulate the development of health delivery programs to satisfy the needs of the region they served (functions now transferred to MHSA and MMERF).

REGIONAL OFFICE - One of ten decentralized offices of the United States Department of Health, Education and Welfare which conducts the business of that department for a specific group of states.

REHABILITATION - Preparing a person to function within the limits of his original or residual disability by the acquisition, return, or accommodation to loss of skills or knowledge.

REHABILITATION FACILITY - A center providing vocational, social, medical, and educational services to overcome impairments due to disease or injury.

REIMBURSEMENT - Payment for services rendered.

RESIDENTIAL CARE - Diagnosis, care, and treatment of alcoholicsin small group homes.

RETROSPECTIVE REIMBURSEMENT - Payment to health care providers by a third party carrier for costs or charges incurred by its subscribers in a previous time period.

REVENUE SHARING - A federal program redistributing tax monies to local governments for the purpose of meeting specific problems including health, environment, public safety, transportation and recreation.

REVIEW & COMMENT - The process of analyzing and making recommendations regarding an applicant's proposal. Reviews are conducted by the Subarea Council, Project Review Committee and Executive Committee of the MHSA.

SANITARY CHEMISTRY - The chemistry dealing with the establishment of environmental conditions favorable to health.

SCREENING - A series of tests to identify individuals with a disease or risk of disease.

SECONDARY CARE - Health care services which are generally needed less frequently, such as short-term hospital services, nursing home care, and the more highly specialized consultant services.

SECONDARY TRANSPORTATION - An organized system of emergency vehicles which provide transport of patients and medical personnel (after the patient's condition has been stabilized) to critical care centers.

SECTION 1122 - That section of the Social Security Act pertaining to changes in facilities or services as they relate to payments from Medicare anc Medicaid, Title XI of P.L. 92-603.

SEPSIS - The presence in the blood or other tissues of pathogenic microorganisms or their toxins.

SEROLOGY - The science dealing with serums (the watery portion of an animal fluid remaining after coagulation), and especially with their reactions.

SERVICE AREA - The geographic region from which a particular program or facility draws the majority of its users; also known as medical trade area.

SHARED SERVICES - The coordinated or otherwise explicity agreed upon sharing of responsibility for provisor of medical or nonmedical services on the part of two or more otherwise independent health care facilities or programs.

SITE - The land proposed for construction ot a health care facility and any building thereon included in the purchase cost, whether such building is to be used in the construction, or is to be razed.

SKILLED NURSING FACILITY (SNF) - A health institution, licensed by the State Health Department, which is planned, organized, operated and maintained to provide facilities and health services with related social care to inpatients who require regular medical care and 24-hour nursing services for illness, injury or disability.

SLIDING FEE SCHEDULE - A fee schedule under which the fee charged a patient for services varies with his ability to pay, however this ability is determined.

SOCIAL SERVICES - Programs provided by trained personnel to enable a patient, family members or others to deal with the problems affecting the patient's social function and well being.

SOLO PRACTICE - The operation of a private practice by one health professional.

SPECIALIST - A health professional who limits his practice to a specific area of competence, usually based on specialized training and recognized by a specialty board.

STAFF - Refers to all employees of a facility or organization. The term may also be used to refer to a specific sub-group such as medical staff or nursing staff.

STANDARD - A generally accepted measure of quality.

STANDARD METROPOLITAN STATISTICAL AREA (SMSA) - U.S. census term referring to specific areas based on population, metropolitan character, and integration criteria. Great Falls and Billings metropolitan areas are only areas in Montana currently qualified as SMSA's.

START-UP COSTS - The initial implementation costs incurred by a program before it begins to generate its own revenue.

STATE ADMINISTRATIVE PROGRAM (SAP) - The State agency program specifying performance within the state for components of P.L. 93-641.

STATE HEALTH PLAN (SHP) - The State's health plan made up of HSPs from each Health Systems Agency as well as modifications suggested by the SHPDA and plans for state-provided services which are also developed by the SHPDA. The final approval of the SHP rests with the SHCC.

STATE HEALTH PLANNING AND DEVELOPMENT AGENCY (SHPDA) OR (SA) - The agency of state government, selected by the Governor and approved by the Secretary of the Department of Health, Education and Welfare, which assumes responsibility for health planning for state government and coordination of health plans developed by each Health Systems Agency within its jurisdiction. The SHPDA in Montana is the Health Planning and Resource Development Bureau, Hospital & Medical Facilities Division of the State Department of Health and Environmental Sciences.

STATE MEDICAL FACILITIES PLAN (SMFP) - The state's program to identify projects and their relative need for assistance under Title XVI of the Public Health Service Act for modernization, construction or conversion of facilities.

STATEWIDE EMS SYSTEM - A network of regional EMS systems, coordinated and integrated at the state level.

STATEWIDE HEALTH COORDINATING COUNCIL (SHCC) - A statewide body composed of the Health Systems Agency as well as other members appointed by the Governor. Among other things, the SHCC approves and adopts State Health Plans and State Medical Facilities Plans.

STIMULANTS - A family of drugs which directly stimulate the central nervous system. The most widely known stimulant is caffeine. The most commonly abused stimulants are amphetamines.

SUBAREA ADVISORY COUNCILS - Advisory bodies serving areas within a Health Service Area. These councils may advise the Governing Body of an HSA with respect to the performance of its mandated functions.

SUBSTANTIAL CHANGE IN SERVICE - Substantial changes in services include:

1. The addition of any new clinically related (i.e., diagnostic, curative, or rehabilitative) service to be offered or department to be added;
2. The termination of a clinically related service or department which had previously been provided;
3. Any change in the scope or type of an existing service or department, or in the capability for providing such service;
4. The conversion from one type of health facility to another, including the conversion from one level of care to another in a nursing home.

SUPPORTIVE CARE - Measures taken to maintain vital body functions.

SURGICALS - Examinations of tissues removed during surgery.

SURGICENTER - A facility which serves outpatients requiring surgical treatment exceeding the capacity of the physician's office but not requiring hospitalization as an inpatient.

SYPHILIS SEROLOGY - Examinations of serums for the contagious venereal disease, syphilis.

SYSTEMS ANALYSIS - The construction of models to simulate real life and thus make possible tests of effects produced by alterations in constraints or variables which could not be tested in the real world.

TARGET POPULATION - The population group or subgroup toward which services are directed.

TASK FORCE - A group of persons charged with investigating a particular problem and formulating proposals for its solution.

TELEMETRY - The use of radio channels for transmitting patient vital signs.

TERTIARY CARE - The most highly developed and specialized health care services; medical subspecialities offered in a limited number of sophisticated facilities.

THIRD PARTY PAYER - A private organization or government agency that pays for the health services of recipients.

TITLE V OF THE SOCIAL SECURITY ACT - Authorizes payments for maternal and child health services.

TITLE XIII OF THE PUBLIC HEALTH SERVICE ACT - The Health Maintenance Organization Act of 1973 (P.L. 93-222).

TITLE XV OF THE PUBLIC HEALTH SERVICE ACT - That amendment to the Public Health Service Act dealing with National Health Planning and Development.

TITLE XVI OF THE PUBLIC HEALTH SERVICE ACT - That amendment to the Public Health Service Act dealing with Health Resources Development.

TITLE XVIII OF THE SOCIAL SECURITY ACT - Authorizes payments for the Medicare Program.

TITLE XIX OF THE SOCIAL SECURITY ACT - Authorizes payments for the Medicaid Program.

TOXICOLOGY - The sum of what is known regarding poisons; the scientific study of poisons, their actions, their detection, and the treatment of the condition produced by them.

TRANQUILIZERS - A family of drugs generally used to counteract tension and anxiety without significantly impairing mental and physical functions.

TRANSFER AGREEMENTS - Written agreements between facilities which specify availability and payment arangements.

TRAUMA - An acute injury or wound, such as head injuries, gunshot wounds, motor vehicle accidents, etc.

TRIAGE - The classification of the ill or injured to determine priority of need and appropriate care or treatment.

UNIFORM COST ACCOUNTING - The use of a common set of accounting definitions, procedures, terms and methods for the accumulation and communication of data relating to the financial activities of an organization.

UTILIZATION - Patterns or rates of use of health care services.

UTILIZATION REVIEW (UR) - Evaluation of the necessity, appropriateness and efficiency of medical services, procedures and facilities.

VARIABLE COSTS - Costs which generally increase or decrease as utilization fluctuates.

VENTRICULAR ARRHYTHMIA - Variation in normal rhythm of the heartbeat.

VERTICAL CATEGORIZATION - A classification of hospital capability according to specialty care resources.

VIROLOGY - A branch of microbiology concerned with viruses and virus diseases.

VITAL STATISTICS - Statistical data reporting health, disease, deaths, births, and marriages.

WORKING CAPITAL - The sum of an institution's investment in short-term or current assets.

WORK PROGRAM - A plan of action or schedule for task completion.

APPENDIX 6

THE HEALTH PLANNING AND DEVELOPMENT PROCESS

In revising the 1980 Health Systems Plan, public hearings were conducted in each of the five Montana Health Systems subareas. The subareas reviewed and commented on the tertiary, secondary, primary, pre-care and preventive health service components. The health status components were reviewed by the subareas and emphasized as components providing a potential for next year's Annual Implementation Plan projects.

The 1981 Health Systems Plan represents a change in format which was dictated by the planning guidance, approved by the SHCC and accepted by DHHS Region VIII. The new format provides for a more complete analysis of availability, accessibility and cost of services, greater emphasis on the analysis of alternatives and issues and the incorporation of priorities derived from statewide policy analyses.

Long range recommended actions in the 1981 plan help to provide a mechanism for selection of AIP projects and identifies needed actions by specific dates.

The Preventive Medicine and Risk Reduction section of the plan has been improved to include components on Maternal and Infant Child Health Services and Immunization Programs. Additionally, service specific components have been developed for Intermediate Care Facilities/Mental Retardation, Federal Primary Care Programs and Hospice.

Since no usable guidelines could be developed for CT Scanners, the component has been eliminated.

Figure 1 illustrates the general process used in developing all new components in the Montana Health Systems Plan. This process was jointly developed by the MHSA and the State Health Planning and Development Agency (SHPDA). It was submitted to, and adopted by, the MHSA Governing Board on November 5, 1976. Task forces were incorporated into the planning process by the MHSA Executive Committee during its June 2, 1978 meeting.

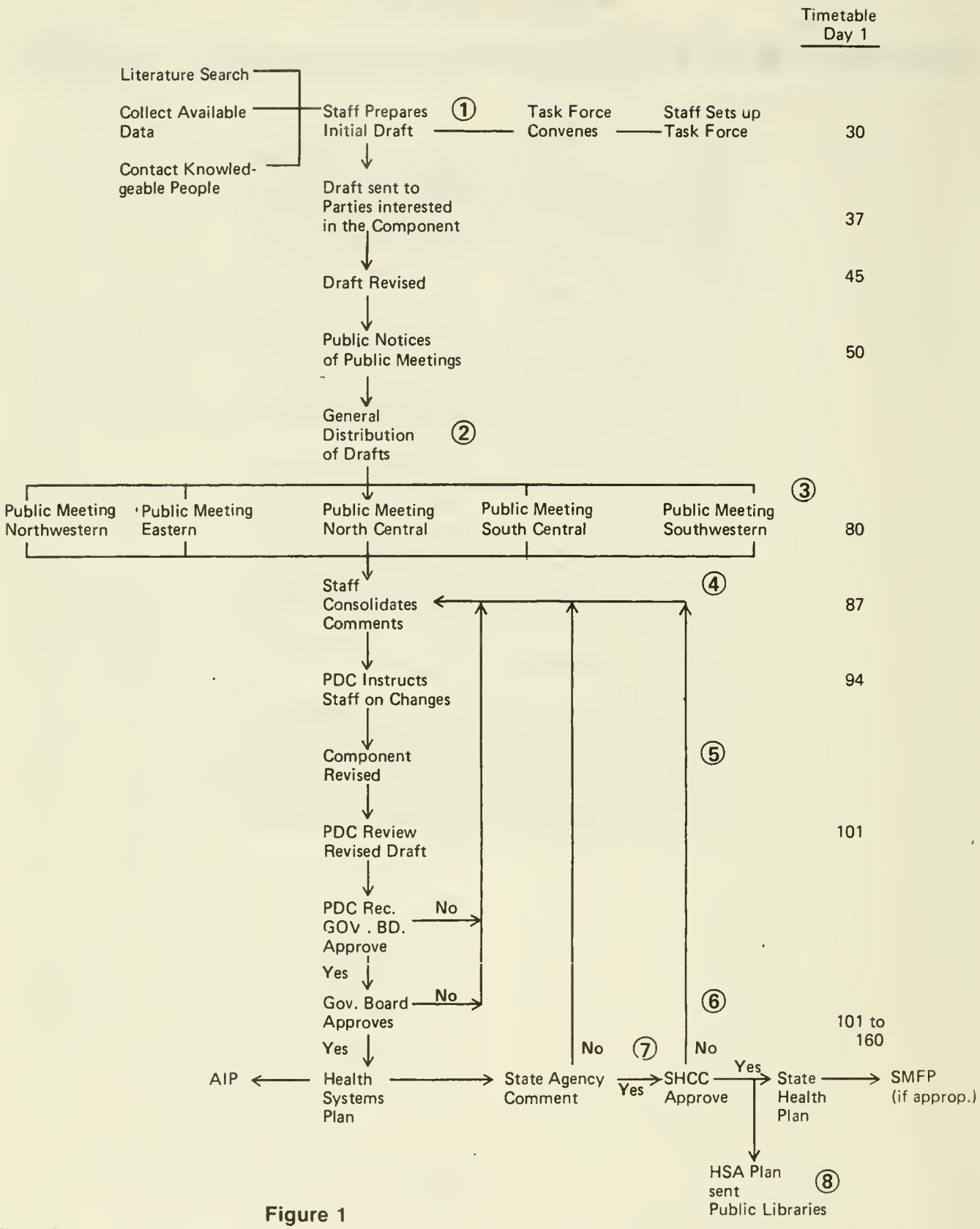


Figure 1
Flow Chart for the Health Systems Plan Development Process

APPENDIX 7

PROFILE OF THE AMERICAN INDIAN IN MONTANA

INTRODUCTION

The Native American comprises the largest racial minority group in Montana, accounting for approximately four percent of Montana's total population (Table 1). This racial minority experiences a lifestyle which contrasts sharply with the general population. Many Native Americans have retained aspects of their traditional culture which tends to alienate them from the mainstream population. Some,

	TOTAL MONTANA	BLACKFEET	CROW	FLATHEAD	FORT BELKNAP	FORT PECK	NORTHERN CHEYENNE	ROCKY BOY'S
Under 5	4,367	811	803	798	346	683	587	339
5-14	10,241	1,903	1,883	1,872	813	1,602	1,376	792
15-24	6,071	1,128	1,116	1,110	482	949	816	470
25-34	3,609	671	664	660	286	564	485	279
35-44	2,953	549	543	540	234	462	397	228
45-54	2,329	433	428	426	185	364	313	180
55-64	1,639	305	301	300	130	256	220	127
65+	1,603	298	295	293	127	251	215	124
TOTAL	32,812	6,098	6,033	5,999	2,603	5.131	4,409	2,539

TABLE 1

POPULATION, BY AGE, FOR THE NATIVE AMERICAN

Source: Indian Health Service, November, 1980.

Native American and general U.S. population mortality rates are summarized below:

AGE ADUSTED MORTALITY RATES 1/AND RATIOS INDIANS AND ALASKAN NATIVES TO U.S. ALL RACES, 1978

	Indian and Alaska Native	U.S., All Races	Ratio Indian & Alaska Native to U.S. All Races
All causes of death	841.4	606.1	1.4
Infant deaths	16.4	14.1	1.2
Influenza and Pneumonia	33.0	15.4	2.1
Accidents	160.8	44.3	3.6
Motor vehicle	91.9	23.4	3.9
All other	68.9	20.9	3.3
Cirrhosis of the liver	62.3	12.5	5.0
Homicide	27.8	9.6	2.9
Suicide	18.5	12.0	1.5
Diabetes Mellitus	26.7	10.4	2.6
Tuberculosis, all forms	6.2	1.0	6.2

1/ Infant deaths are calculated per 1,000 live births, other mortality rates are age adjusted, calculated per 100,000 population.

especially the elders, speak little or no English. The standard of living is low, and many are deprived of such life-serving necessities as good nutrition and a sanitary environment. Educational and employment opportunities for the Native American are limited. Many Indian people live in isolated, rugged areas where climatic conditions can be harsh.

Under such conditions, a number of health related problems are evidenced in high proportions among the Indian people. Some of the most serious problems evidenced are accidents, respiratory diseases, alcoholism, and heart diseases. Other major health concerns include infective and parasitic diseases, maternal and child health problems, and skin infections.

The health problems of the Native American are further exemplified through statistical comparisons with the general, all races, United States population. In fact, it has been said that the health statistics of the American Indian lags 15 to 20 years behind the U. S. population.

For instance, the Blackfeet death rate for cirrhosis of the liver is six times greater than the general U.S. population, five times greater for accidental deaths, and two times greater for infant mortality. Dental disease among the Blackfeet affects over 95 percent of the population. The Fort Belknap and Fort Peck Tribal Health Departments have identified alcoholism as the number one health problem. The Salish and Kootenai tribes, (Flathead Reservation) have

identified as their major health problem deaths due to accidents and violence.

For the Native American in Montana, the five leading causes of death, 1975-1977 were:

(Rates per 100,000 Population)

	Number	Rate Per 100,000 Population
Blackfeet		
Diseases of heart	48	269.5
Accidents	38	213.3
Motor vehicle	31	174.0
All other	7	39.3
Malignant neoplasms	14	78.6
Influenza and pnuemonia	8	44.9
Homicide	7	39.3
Northern Cheyenne		
Accidents	24	200.3
Motor vehicle	16	133.5
All other	8	66.8
Homicide	5	41.7
Malignant neoplasms	5	41.7
Suicide	4	33.4
Diseases of heart	3	25.0
Rocky Boy's		
Accidents	12	188.3
Motor vehicle	9	141.2
All other	3	47.1
Diseases of heart	8	125.6
Malignant neoplasms	4	62.8
Certain causes of mortality in early infancy	3	47.1
Suicide	2	31.4
Crow		
Accidents	40	250.7
Motor Vehicle	20	125.4
All other	20	125.4
Diseases of heart	22	137.9
Cirrhosis of liver	14	87.8
Malignant neoplasms	12	75.2
Homicide	5	31.3
Flathead		
Accidents	30	195.6
Motor Vehicle	20	130.4
All other	10	65.2
Diseases of heart	28	182.5
Malignant neoplasms	14	91.3
Cerebrovascular disease	7	45.6
Cirrhosis of liver	2	13.0
Fort Belknap		
Diseases of heart	21	340.5
Accidents	16	259.4
Motor vehicle	10	162.2
All other	6	97.3
Cerebrovascular Disease	3	48.6
Cirrhosis of liver	3	48.6
Influenza and pnuemonia	2	32.4
Fort Peck		
Accidents	25	182.2
Motor vehicle	16	116.6
All other	9	65.6
Diseases of heart	23	167.6
Cirrhosis of liver	16	116.6
Malignant neoplasms	13	94.7
Homicide	3	21.9

Source: Selected Vital Statistics for Indian Health Service areas and Service Units, 1972-1977

Confederated Salish and Kootenai Tribal Health Department (Flathead Reservation)

The Indian Health Service has developed a system of Contractual arrangements with health care providers from the private section. With this contract medical care arrangement, the Indian Health Service has assumed a role similar to that of an insurer, merely processing and paying bills for medical services utilized by Tribal Members. In recent years, the Indian Health Service has developed a Community Health Service Program to complement the Contract Medical Care Services. These Community Health Service programs are managed through the Public Health Service Clinic at St. Ignatius which also offers Dental, Pharmacy, and Environmental Health Services. The Indian Health Service also contracts with the Tribal Health Department for some Preventive and Educational Services. These include the Community health Representatives Program, health Education Program, and Tribal Health Nursing Program. With the advent of P.L. 93-638, the Indian Self-Determination Act, the number of Tribally operated Health Programs can be expected to increase dramatically.

The following outline illustrates the limitations of the Health Care Delivery System provided for the Flathead Reservation. The unmet needs are in percentage form and are based on the Indian Health Service Resource Allocation Criteria. The Resource Allocation Criteria is a method for estimating the health resources required for the provision of comprehensive health services to a designated population.

Health Service		Unmet Need
Contract Medical Care	**Total**	**64.0%**
Community Health Services	**Total**	**72.8%**
Community Health Nursing	77.8%	
Public Health Nutrition	100.0%	
Environmental Health Services	70.0%	
Mental Health Services	61.2%	
Social Services	71.2%	
Health Education	48.2%	
Administrative Services	**Total**	**83.1%**
Tribal Health Programs	**Total**	**64.9%**
Tribal Outreach		35.3%
Community Alcohol Program		100.0%
Emergency Medical Services		100.0%

Blackfeet

Inpatient and outpatient services are provided through a facility built in 1937 and remodeled in 1960. According to the Tribal Health Department, the bed capacity of the facility is adequate but the facility is deteriorating and is scheduled for modernization or replacement. The outpatient department is inadequate in size and layout. There are too few exam rooms and the emergency room is too small.

Alternatives do exist in Cut Bank (45 min.) and Conrad (90 min.) for both inpatient and outpatient services, but distance, severe weather conditions, lack of transportation and lack of economic means present access barriers to these alternatives.

Using Indian Health Service Resource Allocation Criteria (RAC), the Blackfeet Health Service Area has an overall staffing deficiency of 41 percent, and a 37 percent deficiency in contract health services funds. Contract Health Service funds are used to purchase services from private physicians and agencies in areas of specialties that Indian Health Services lacks, such as tertiary care.

In the inpatient care department there exists a 48 percent staffing deficiency, a 44 percent staffing deficiency in ambulatory care and a 55 percent deficiency in community health and preventative health staffing.

Fort Peck Tribal Health Department

Health Services are provided through Poplar Community Health Center and the Wolf Point Health Center. No inpatient care is provided at either facility. Inpatient services are provided through contractual arrangements with hospitals in Poplar, Wolf Point, Great Falls, and Billings, in addition to Williston and Minot, North Dakota. Dental services are provided by the dental staff of the Poplar and Wolf Point dental clinics. Specialty clinics are also offered on designated days on chest/TBC, pediatrics, OB/GYN, and orthopedic.

Included in the Community Health Services jurisdiction are:

1. Community Health Nursing (5 positions authorized in FY 1979)
2. Public Health Nutrition (1 position authorized in FY 1979)
3. Environmental Health (6 positions authorized in FY 1979)
4. Mental Health (5 positions authorized in FY 1979)
5. Social Service (1 position authorized in FY 1979)
6. Health Education (2 positions authorized in FY 1979)
7. Comprehensive Alcoholism Program (No positions authorized in FY 1979)

Demand areas for health services in 1984 are ambulatory care, emergency medical services, and alcoholism.

Fort Belknap Tribal Health Department

Fort Belknap has the *highest rate of unemployment among the seven reservations* in the state of Montana and is virtually undeveloped in every respect. Therefore. they are heavily dependent upon federally subsidized programs to alleviate this problem. Out of the total population of 2,603, the total number of unemployed fluctuates between a low of 40 percent to a high of 75 percent depending upon the season of the year. The reasons for such a high unemployment rate at Fort Belknap are lack of any type of economic development, low educational levels, and a lack of financial backing for Indian operations in the cattle and farming industries. Due to a lack of economic development, there is a critical skill shortage in virtually every type of occupation other than common labor.

The Tribal Planning Department is currently involved in the following economic resource development feasibility studies: (a) an industrial plant (b) a tribal potato farm (c) a tribal grain growing industry (d) a tribal fishery and hydro plant at Big Warm (e) geothermol prospects from a warm water well (f) oil, gas, coal, bentonite, and gold exploration (g) rock gravel (h) wind (i) timber.

Rocky Boy Health Board Health Resources

The Indian Health Service, in conjunction with the Rocky Boy Health Board, operates a Health Center at the Agency. In 1976, a new and larger facility was completed, which is being leased by Indian Health Services from the Chippewa-Cree Tribe. This faciltiy has complete outpatient services.

The Rocky Boy Indian Health Center provides medical and dental care to the Indian People living on the reservation and in adjacent communities. (Hill and Choteau Counties). Periodically, outpatients are brought in from Cascade County (Great Falls) mainly for optical and dental clinical services.

WIC — A special supplemental food program for Women, Infants and Children is a federally funded (USDA) program

designed to be part of an on-going health care program. It provides nutrition education and nutritious food supplements to women (pregnant, nursing or six months postpartum), infants, and children (ages 1-5).

Day-to-Day Program Services

The Indian Health Center provides medical and dental care to approximately 2,388 Indian people living on the reservation and in adjacent communities.

In Fiscal Year 1979, there were 15,556 outpatient visits, and in 1978, there were 16,240 outpatient visits. This figure does not include 913 outpatient followup visits from hospital referrals.

Contract Medical Care — In addition to direct medical care, services are provided Indian people (who meet the "On and Near" criteria) by private medical and dental facitlites on a contract basis. The purpose of this program is to provide health services otherwise not available to the patient because the patient is temporarily away from the reservation.

Dental Services — Dental services are provided by two dental officers and three dental assistants; however, one dental officer is shared with the Fort Belknap Service Unit.

Fluoridation units have been installed into the water systems of both the Box Elder and Rocky Boy Schools and the Rocky Boy Agency Community. Dental health education in the form of toothbrush distribution and a brush-in-program has become a regular program administered in the Rocky Boy and Box Elder Schools.

Community Health Services

Community Health Services are provided by a team of persons under the direction of the Tribal Health Board Director. Included in Community Health Services are an Environmental Health Technician, a Public Health Educator, Public Health Nursing, Dental Health, Detox, EMT, and Transportation.

Public Health Nursing Activities — There is one full-time Community Health Nurse and one LPN at this Service Unit. Community Health Nursing Services are contracted for through the Rocky Boy Tribal Health Board. Community Health activities include weekly maternity and well-child clinics, quarterly chest clinics, monthly diabetic clinics, EMT, hypertension clinics as needed, and immunization clinics within the schools. Family planning is mentioned during postartum visits and discussed when the family indicates an interest.

Public Health Educator — The Public Health Educator at the Rocky Boy's Health Center has been contracted to the tribe under the P.L. 94-638 mechanism. The program is responsible for providing health education services to individual patients, community members, support for IHS staff, and school health activities. The Health Educator supervises the Health Education program, which includes the School Health coordination, the WIC nutritionist and the dental CHR.

Mental Health Services — The mental health program on the reservation has two positions, a psychiatric social worker, and a social worker associate who is under contract to the tribe. The Mental Health Department is involved in therapy to individuals on the reservation, consultation to the Box Elder School and consultation to the alcoholism program on the reservation in Havre.

Environmental Health — Community Health Services include an active environmental health program. This involves ensuring safe water resources and safe means of waste disposal.

Communication Disorders Program — The Communication Disorders Program provides services which include regular otologic and audiologic clinics held on a monthly basis, and facial and congenital anomaly clinics which are held approximately two times a year.

Unmet Health Needs — Nine health programs have been identified in the Tribal Specific Health plan as being unmet health needs according to the Resources Allocation Criteria (RAC Module).

1. Extended Care Facility;
2. Emergency Medical System;
3. Urban Health Program'
4. First Respondent Program; and
5. A Comprehensive Alcoholism Program.
6. Ambulatory Care Service—required positions—23.1
   I.H.S. authorized positions 21. Unmet need—2.1.
7. Public Health Nutritionist—Direct required position—1
   I.H.S. authorized positions—0; Unmet need—1.
8. Community Health Services—Direct required positions—14.3;
   I.H.S. authorized positions—9;Unmet need—5.7.
9. Quality Assurance—Direct required positions—6;
   I.H.S. authorized positions—2; Unmet need—4.

Unmet health needs were prioritized according to established goals. The priorities indicate what health needs should be satisfied first. They are as follows:

1. Alcoholism program;
2. Transportation & EMS program;
3. Extended Care Facility;
4. First Respondent Program; and
5. Urban Health Program.

THE OFF—RESERVATION INDIAN POPULATION

The off-reservation Indian population totals more than 15,000 American Indians in the State of Montana. Due to the transient population movement to and from the reservation areas in Montana and adjoining states, the census has never accurately recorded the mobile Indian population.

The eight urban areas which have developed Indian alliances under the umbrella organization of the Montana United Indian Association (MUIA) have surveyed their populations and have documented Indian populations as much as five times greater than census figures. The comparison table below shows the discrepencies.

	IHS Figures 1981	1981 MUIA Project Population
Great Falls	2,235	4,171
Helena	451	2,383
Missoula*	426	1,341
Butte	380	710
Billings*	486	1,395
Anaconda	251	518
Miles City	77	732
Havre*	————	1,395

*Due to "on or near" regulations of IHS, these areas do not show accurate counts due to the tribal affiliations of the nearest reservation being counted in the reservation population. Therefore, only the Indian population not qualifying as "on or near" are counted. Example:Crow and Northern Cheyenne population in the Billings Urban Area are only counted in the reservation population by IHS and are excluded from the Urban Statistics.

According to the Resource Allocation Criteria (RAC) of the Urban Specific Health Plan, to meet the unmet health care needs of the eight urban areas Indian population, the total dollar cost in 1981 would be nearly 85 million dollars. Presently, the eight urban projects funding through IHS is less than $450,000.

According to statistics, the chronic health problems that plague the Urban Indian in the eight specific areas are:

- Dental
- Upper Respiratory
- Eye Problems
- Alcoholism
- Child Care and Immunization
- Ear Problems
- Prenatal Care
- Accidents

These major health problems are taken from the Morbidity Data published by the State of Montana.

APPENDIX 8
MHSA COMMITTEE MEMBERSHIP

PLAN DEVELOPMENT

Philip Catalfomo—CHAIRMAN
Crystal Day
Gary Dols
Guy Glenn
Bud Little
Andrew Hellstern
Clyde Dowell
Jean Hough
Henry Stish
Jackie Redding
Paul Cousins

POLITICAL ACTION/STREAMLINING

Frank Lane—CHAIRMAN
Pat McCarthy
Terry Donahue
Larry Bonderud
Michael Donovan
Charles Fisher
Betty Mitchell
Gerry Halstead
Robert Bell
Rudyard Goode
Ray Amundson
Governor's representative

NATIVE AMERICAN

Charles Fisher—CHAIRMAN
Laurence Kenmille
Jackie Redding
Paul Cousins
Ada Weeding
David Wilkins
Jean Gowdy

FINANCE

Janice Treml—CHAIRMAN
Frank Lane
Henry Stish
Rudyard Goode
Morris Billehus
John Allen

EXECUTIVE COMMITTEE

John Allen
Robert Bell
Philip Catalfomo
Sharon Dieziger — CHAIRMAN
Kent Ferguson
Charles Fisher
John St. Jermain
Janice Treml

REVIEWS POLICY

Ray Amundson—CHAIRMAN
Jean Gowdy
David Wilkins
John Sampsel
Terry Donahue
Clyde Dowell
Gerry Halstead
Ed Morse
Laurence Kenmille
Morris Billehus

SUBAREA ADVISORY

Rudyard Goode—CHAIRMAN
Mary Ellen Robinson
Betty Mitchell
Henry Stish
Robert Bell
Verneva Salisbury
Jean Gowdy
Kent Ferguson
Larry Bonderud
Jack Dodd

INTERNAL MANAGEMENT

John Allen—CHAIRMAN
Janice Treml
Phil Catalfomo
Neil Livingstone
Mary Ellen Robinson

BY-LAWS

Mary Ellen Robinson—CHAIRMAN
Betty Mitchell
Ed Morse
Gary Dols
John St. Jermain

Rudyard Goode
Bud Little
Pat McCarthy
Betty Mitchell
Edward Morse
Mary Ellen Robinson
Henry Stish

MONTANA HEALTH SYSTEMS AGENCY
INCORPORATED
JUNE, 1981

PROFESSIONAL STAFF

James Foley, Executive Director
Bert Glueckert, Director of Health Plan Implementation
Vearle Addy
Barbara Kirscher
Pat Petaja

SUPPORT STAFF

Gerri Reeves
Sharon Workman
Susan Pedersen
Catherine Swenson

GOVERNING BOARD

Last Year of Term

John Allen — 1983
1140 Vallejo Drive
Helena MT 59601
449-3420/458-9743
Consumer, SW, Area 4

Ray Amundson — 1982
1827 Beech Drive
Great Falls MT 59401
761-3150
Consumer, NC,Area 2

Robert Bell, D.V.M. — 1981
515 Broadway
Culbertson MT 59218
787-6682
Consumer, E, Area 1

Morris Billehus — 1981
Box 384
Scobey MT 59263
487-5561/799-3695/487-2869
Elected Official, Consumer, E, Area 1

Larry Bonderud, O.D. — 1982
P.O. Box G
Shelby MT 59474
434-5196
Optometrist, Provider, NC, Area 2

Philip Catalfomo — 1983
33 Willowbrook Lane
Missoula MT 59801
728-5411/243-4621
Professional Schools, Provider, NW, Area 5

Reverend Paul Cousins — 1983
Box 1332
Conrad MT 59425
278-5370/278-3043
Consumer, NC, Area 2

Crystal Day — 1983
301 West Alder
Missoula MT 59801
721-5700
League for Nursing, Provider, NW, Area 5

Sharon Dieziger — 1982
3604 Fifth Avenue South
Great Falls MT 59405
761-1200 ext. 2334 or 2335/453-1525
Mt. Nurses' Assoc., Provider. NC, Area 2

Jack B. Dodd — 1983
P.O. Box 816
Whitefish MT 59937
862-2819
Consumer, NW, Area 5

Gary Dols — 1982
1120 Broadwater Avenue
Billings MT 59101
259-1757/252-3275
Chiropractor, Provider, SC, Area 3

Terry Donahue — 1982
2812 Goodwin
Butte MT 59701
494-5693
Pharmacist, Provider, SW, Area 4

Last Year of Term

Michael Donovan — 1981
Montana Physicians Service
404 Fuller Avenue
Helena MT 59601
442-5450
Blue Shield, Provider, SW, Area 4

Clyde Dowell — 1981
P.O. Box 386
Eureka MT 59917
296-2775
Consumer, NW, Area 5

Kent Ferguson, Administrator — 1981
Hot Springs Convalescent, Inc.
Drawer U
Hot Springs MT 59845
741-2992
Mt. Nursing Homes, Provider, NW, Area 5

Charles Fisher — 1981
P. O. Box 26
Babb MT 59411
732-4031
Mt. United Indian Assoc., Consumer, NC, Area 2

Guy C. Glenn, M.D. — 1981
P. O. Box 2505
Billings MT 59103
656-0769/657-7148
Physician, Provider, SC, Area 3

Rudyard Goode — 1982
643 East Beckwith
Missoula MT 59801
728-4766/243-6716
Consumer, NW, Area 5

Jean Gowdy — 1981
Pryor Star Route
Billings MT 59101
259-0495
Allied Health, Provider, SC, Area 3

Gerry Halstead — 1981
P.O.Box 608
Anaconda MT 59711
563-7619/563-3110/563-3550
Consumer, SW, Area 4

Andrew Hellstern — 1981
P.O.Box 368
Hinsdale MT 59241
648-5521
Low Income, Consumer, E, Area 1

Jean Hough — 1983
311 West Holt
Broadus MT 59317
436-2671
Consumer, E, Area 1

Laurence Kenmille — 1982
P.O. Box 85
Elmo MT 59915
745-2061
Mt. Indian Health Bd., Consumer, NW, Area 5

Last Year of Term

Frank Lane — 1982
Eastern Mental Health Center
1819 Main Street
Miles City MT 59301
232-0234
Mental Health, Provider, E, Area 1

Bud Little, M.D. — 1983
1019 Floweree
Helena MT 59601
442-5586
Physician, Provider, SW, Area 4

Neil Livingstone, D.D.S. — 1981
820 North Montana Avenue
Helena MT 59601
442-7530
Dentist, Provider, SW, Area 4

Pat McCarthy, M.D. — 1981
501 West Broadway
Missoula MT 59801
543-6831/721-5600
Physician, Provider, NW, Area 5

Betty Mitchell — 1983
1902 St. Johns Avenue
Billings MT 59102
656-6179
Consumer, SC, Area 3

Edward Morse — 1981
Denton MT 59430
567-2304
Consumer, SC, Area 3

Jackie Redding — 1982
Big Horn MT 59010
342-5481
Consumer, SC, Area 3

Mary Ellen Robinson — 1981
Highwood MT 59450
733-5161
Consumer, NC, Area 2

John St. Jermain — 1982
4611 Second Avenue North
Great Falls MT 59401
727-8222/452-2838
Elected Official, Consumer, NC, Area 2

Verneva Salisbury — 1981
Floweree MT 59440
734-5383
Senior Citizens, Consumer, NC, Area 2

John J. Sampsel, M.D. — 1982
V.A. Hospital
Miles City MT 59301
232-0790/232-1553
Physician, Provider, E, Area 1

Henry Stish — 1982
414 South Arizona
Dillon MT 59725
638-7382/683-7011 (0)
Consumer, SW, Area 4

Last Year of Term

Janice Treml — 1983
620 Alderson Avenue
Billings MT 59101
252-5181 ext.221
Home Health, Provider, SC, Area 3

Ada Weeding — 1982
Jordan MT 59337
557-2557
Consumer, E, Area 1

David Wilkins, M.D. — 1981
Route 36, Box 85-C
Havre MT 59501
265-7955
Physician, Provider, NC, Area 2

Director (or appointee) — ———
V. A. Hospital
Fort Harrison MT 59636
442-6410
V. A. Rep., Provider, SW, Area 4
EX OFFICIO, NON-VOTING MEMBER

Mary D. Munger at Governor's Pleasure
Box 4177
Helena MT 59604
442-3054
Gov's Rep., Consumer, SW, Area 4

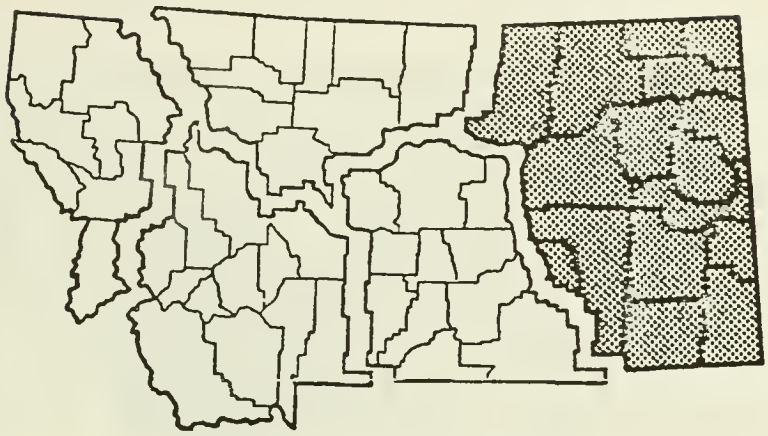
Phyllis A. Bagley, Director — 1983
Missoula Crippled Children and Adult Rehabilitation Center
2829 Fort Missoula Road
Missoula MT 59801
728-3570
Health Care Institution Rep., Provider, NW, Area 5

Hospital Administrator
to be elected

Health Care Institution Representative
to be elected

EASTERN MONTANA

Subarea Advisory Council Members



CONSUMERS

Bertha Baxter
Rt. 1, Box 178
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Culbertson MT 59218
Home#787-6682

W. Boyce Clarke
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Miles City MT 59301
Home#232-3353

Jim Hoffman, President
Dawson Community college
310 Dilworth
Glendive MT 59330
Office# 365-3396

Jean Hough
Broadus MT 59317
Home# 436-2671

Betty Lou Kasten
Brockway MT 59214
Home# 485-2372

Kathleen L. Marks
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Ekalaka MT 59324
Home# 775-6743
Office# 775-6655

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Leonard Meidinger
Terry MT 59349
Home# 637-5767

Wilma M. Michels
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Medicine Lake MT 59247
Home# 286-5524

George Nicholas
109 Sioux
Fort Peck MT 59223
Work# 526-3212

Lyder Tande
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Scobey MT 59263
Office# 487-2259

James Tavary
Box CC
Malta MT 59538
Office# 654-1641
Home# 654-2103

Rolph Tunby
Box 56
Plevna MT 59344
Home# 772-5658

Ada Weeding
Jordan MT 59337
Home# 557-2557

Marlene Welliever
Wibaux MT 59353
Home# 795-2381

Eldon Rice
Rosebud Co. Courthouse
Forsyth MT 59327
Office# 356-7551

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214 14th Ave. S.W.
Sidney MT 59270
Office# 482-1104

James Carlson, Admin.
Custer Co. Rest Home
Box 130
Miles City MT 59301
Office# 232-1035

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Miles city MT 59301
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Office# 232-6237

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Frances Mahon Deac. Hosp.
Box 928
Glasgow MT 59230
Office# 228-4351

Sandra Kinsey
Box 478
Baker MT 59313
Home# 772-5674
Office# 778-2924

Frank L. Lane
1819 Main Street
Miles City MT 59301
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Home# 232-5796

Rose Neumiller, ART
Box 505
Wolf Point MT 59201
Home# 653-2743
Office# 653-2441

Charles Parke, D.O.
Garberson Clinic
Miles City MT 59301
Office# 232-0790

Avis Peterson
113 10th Ave. S.W.
Sidney MT 59270
Home# 482-2868

Mary Alic Rehbein
221 5th St. S.W.
Sidney MT 59270
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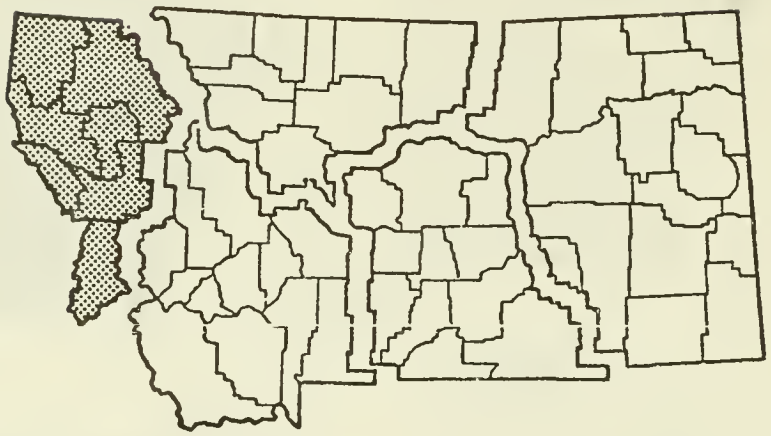
Office#482-2207

Maxine Voorhees, DN
Glendive Community Hospital
Glendive MT 59330
Office# 365-3306
Home# 365-3819

Wilson Schuerholz
(ex-officio)
Director, V A Hosp.
210 So. Winchester
Miles City MT 59301
Office# 232-3060

NORTHWESTERN MONTANA

Subarea Advisory Council Members



CONSUMERS

Eunice Beeley
NW 510 Mill Creek Road
Hamilton MT 59840
961-3422

Bea Blackburn
Box 307
Hot Springs MT 59845
741-3574

S.W. Eccleston
575 C Street, Box AH
Columbia Falls MT 59912
892-3995/892-3261 ext. 2110

Lois W. Ferrell
625 Third Avenue West
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755-4139

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643 East Beckwith
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728-4766/243-6716

Jamie Grant
P.O. Box 173
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293-8267

E. Louise Janssen
216 Mary Avenue
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721-1765

Mrs. Kay Strombo
Route 1, Box 38
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Robert Toole
Route 1, Box 27-I
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PROVIDERS

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V.A. Yaholkovsky, M.D.
210 Sunnyview Lane
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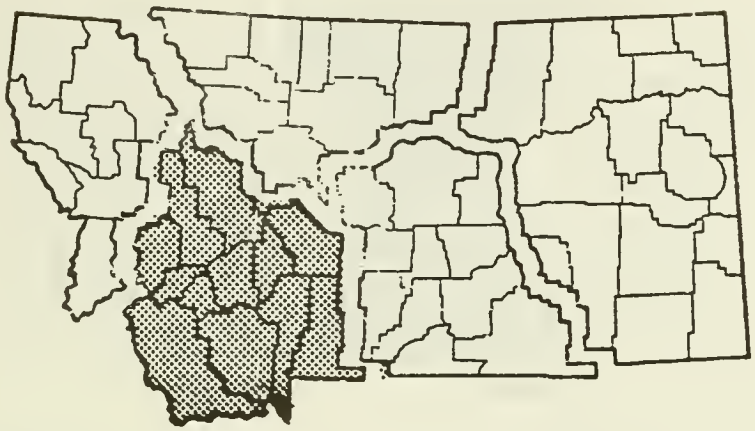
SOUTHWESTERN MONTANA
Subarea Advisory Council Members



CONSUMERS

Ozzie Berg
Gallatin County
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Ennis MT 59729
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Consulting member:
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Butte MT 59701

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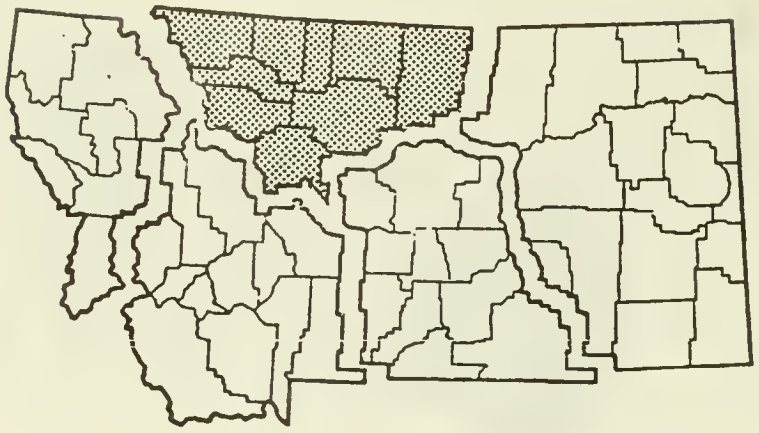
NORTH CENTRAL MONTANA

Subarea Advisory Council Members



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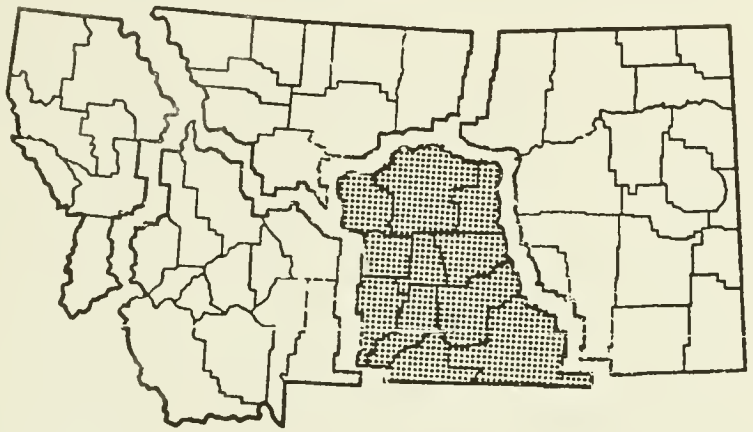
SOUTH CENTRAL MONTANA

Subarea Advisory Council Members



CONSUMERS

Louise Black
Box 55
Ryegate MT 59074

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962-3368

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(filling Barbara Schillings's
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Pat Lengemann
Winnett MT 59087
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Grace Leuthold
Molt MT 59057
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Sister Michel Patenburg,
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Janice Treml
620 Alderson Avenue
Billings MT 59101
252-5181 ext. 221

APPENDIX 9
PERSONAL NOTES

PERSONAL NOTES

PERSONAL NOTES